

# THE ATHLETIC JOURNAL

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*Form in the Shot Put*

BOYD COMSTOCK

*Behavior of the Discus  
in Flight*

JAMES A. TAYLOR

*High Jump Exercises for  
Teaching the Eastern or  
Western Form*

A. M. (BERT) BARRON

*Financing the High School  
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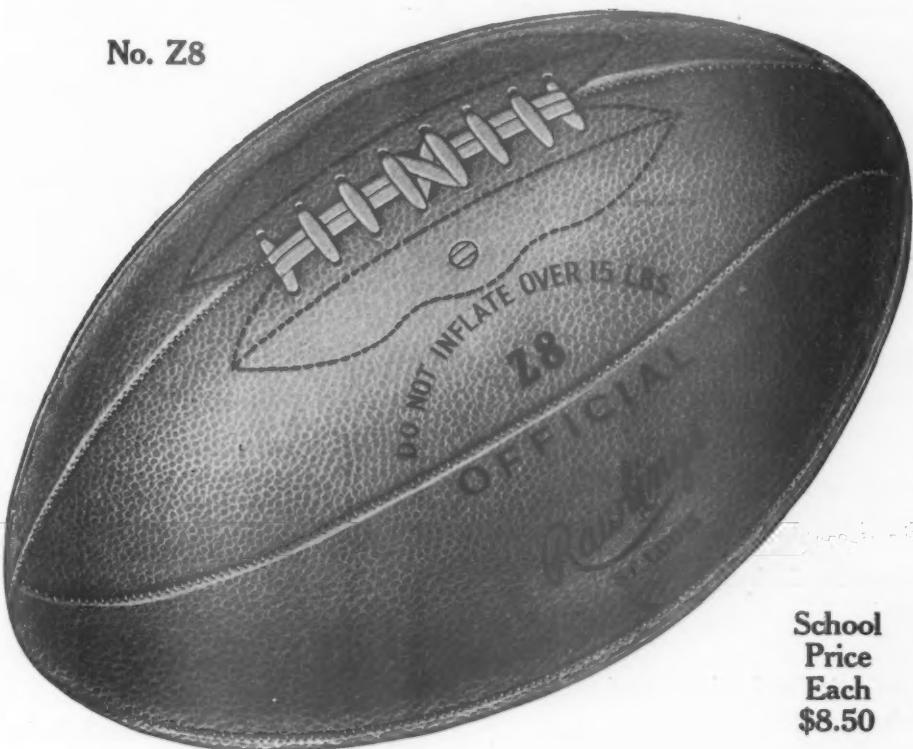
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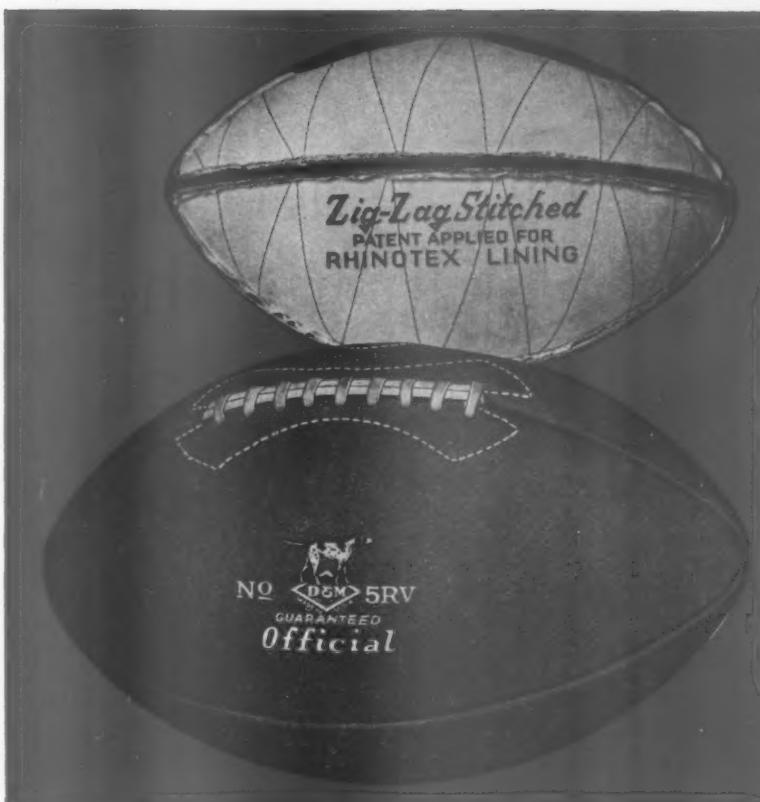
# The ATHLETIC JOURNAL

## CONTENTS

*for April*

PAGE	PAGE		
5 Form in the Shot Put	Boyd Comstock	37 Finances in a High School Less Than One Hundred	M. I. Miller
9 Behavior of the Discus in Flight	James A. Taylor	38 Building a Surplus	Don Carter
11 High Jump Exercises for Teaching the Eastern or Western Form	A. M. (Bert) Barron	16 Helps and Hints	
12 Financing the High School Athletic Department		16 Conserving Energy in Basketball	Claude Miller
12 Personnel and Finance in a Large High School	Howard E. Beatty	17 Meeting Varied Basketball Defenses	R. A. Harrison
13 Organization and Administration of Athletics	J. F. Hyde	17 Basketball Training for the Younger Boys	J. R. Dunmire
13 Reducing Expenses to Meet Reduced Income	Chester Hill	18 Physical Condition Is Essential	Douglas F. Smith
14 The Student Body Fee Weathers the Depression	Clarence Hines	18 Teaching Basketball Defense	Eugene S. Thomas
15 An Established Financial System	Olaf E. Robinson	19 Hints on the Dribble	Glenn A. Hanna
32 A Workable Financial System	Bob Waddell	19 Making Participation a Privilege	Roy D. McLeod
33 Financial Problems of a Parochial School	Michael M. Lake	19 Reducing the Number of Upsets	Robert D. Brown
34 Athletic Finance in a School of One Hundred Students	Ray H. White	43 Game Condition Drills in Basketball	Edward Bohnhoff
36 Athletic Finance in a Farming-Mining Community	Louis F. Bottino	43 Generalship in Football	C. A. "Stub" Muhl
		44 Individual Defense in Basketball	Leonard C. McMahon
		20-21 Editorials	
		22 Physical Education at Deerfield Shields High School	J. Aldred Peel
		28 Why Spring Football?	Stuart Baller

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*Harlow Rothert*

*Herman Brix*

*John Kuck*

## Form in the Shot Put

*By BOYD COMSTOCK  
COACH, LOS ANGELES ATHLETIC CLUB*

THE following facts should be of material assistance in arriving at some definite conclusion concerning the best manner in which to approach the interesting field event, the shot put. First: The permanence of the former record established by the late Ralph Rose and the erroneous deductions we reached by reason of the inability of other first rate performers to better his performance. Second: The seemingly astonishing success of Kuck, Brix, Rothert and the late Eric Krenz, three of whom were Pacific Coast men with the fourth making his record while competing for a Pacific Coast club, which resulted in a general stimulus to other contenders with a general average gain in distance. Third: The original success of the German Champion in 1928 and the recent almost simultaneous success of some four or five other Europeans. Fourth: The fine rise of Leo Sexton, who previously had not been accorded a place among the potential champions.

A resume of this historical development tends toward a belief (a purely personal opinion) that we had accepted a certain distance as the ultimate in record making and that this

mental attitude greatly handicapped the improvement of this event. Had Rose possessed the physique comparable to the average individual it is reasonable to assume that more shot putters would have become dissatisfied with their slow improvement and that this feeling of dissatisfaction would have been responsible for an immediate net gain.

The tremendous arm power of John Kuck, coupled with the fact that he did not possess a giant's build, opened the way to a new line of thought in so far as our American putters were concerned. I know that my experience with this record breaker brought exactly that line of thought into a definite program of analysis and that this had its effect on Herman Brix. Naturally, I have not been surprised to read of European improvements, because it was logical that such a thing should come to pass. It so happens that I had an excellent opportunity to follow the shot putting duels between Brix and Sexton this past indoor season, and my opinion is that I have been underestimating the possibilities in this event. In other words, I have raised my record sights.

I had thought that many of our best

American shot putters were lacking in ability, but at this time I am confident that it is a lack of form that is holding them back. Heretofore it had seemed that some of them, in common with the Europeans, would stumble upon the trick of getting the weight past the 52 foot mark.

This preamble may not seem pertinent to the outlined directions concerning my conceptions of the best way of putting the shot, but to my way of thinking, it has a direct bearing on the subject. Now for a few of the faults which hold back so many fine specimens:

1. The great majority of shot putters either whole-heartedly accept some inefficient orthodox style as being the proper procedure or they refuse to give any common-sense thought to the action. Either course or any attempt to work out any style that is not individualistic is bound to fail in some respect.
2. All of these unsuccessful contenders ignore the value of relaxation and balance, and by their starting stance and subsequent movements across the ring, by losing balance, effectu-



*Harlow Rothert: Recommended start position. Note relaxed, balanced pose and correct free arm position. Also note correct elbow position.*

- ally make it impossible to "get set."
- 3. All of these unsuccessful shot putters and many of the champions have failed to develop the leg assistance that is available, and they attempt to make the action entirely an arm action.
- 4. Only a few of the thousands have utilized the well-known rules of science that are daily taught in college class rooms.
- 5. A fair number of the contenders might ignore all of the preceding faults and still reach championship distances if they would not attempt to reverse immediately from their "set" position. This, to my mind, is the chief fault as I have observed it and the one cardinal reason for low average put. In other words, these athletes attempt to co-ordinate a long reverse action with a long putting action which will result in a lack of build-up speed, or they attempt to co-ordinate a long reverse action with a shorter putting action with a consequent loss of rhythm and efficiency.

#### *Grip*

The shot should be held well up on the hand so that the fingers will have

a share in the final snap of the shot. The "finger-flip" is not successful when this stable hand support is lacking.

#### *Position of Putting Arm*

The shot should not be tucked in against the neck or the upper portion of the shoulders, as such a position will interfere with the freedom of the elbow action. Any preliminary position that causes the elbow to lift automatically upward is not recommended, as it causes a somewhat curving arm drive and a resultant twist. This tends to hurry the action and causes a lack of hand control. Templeton's success as a coach at Stanford comes largely because of his insistence upon this particular phase of the action. All of his shot putters have used the recommended straight-line drive. Brix has had to counteract a tendency to-



*Rothert: Landing position. Recommended position in all respects save that forward foot is extended a trifle too far for firm anchorage.*

ward this same elbow lift by reason of this perfectly natural fault. Keeping the elbow down and well to the rear is one of the fundamental secrets of reaching championship distances.

#### *The Starting Stance*

The starting position should find the athlete in a perfectly relaxed and balanced position. This is a fundamental rule regardless of the position that is adopted. I prefer the "forward-facing"

pose, although none of my present champions uses this style. Practically all of our best putters use the "diagonal" or "side" position, and when this habit has been formed with proper compensations I make no attempt to change these positions. As a matter of fact, this is not all-important if the relaxed, balanced position is employed.

#### *Preliminary Action*

All sorts of gymnastic leg swings and dips have been used by previous champions to the great detriment of their subsequent action. Brix and Rothert are exceptions to this rule. Both men use very little action to get started. The free arm is held easily in front of the body (never held stiffly upward, as this creates a preliminary backward body bend), and is allowed to swing easily with a slight leg swing to start the hop. This arm is bent at the elbow in the blocking position used by boxers. I recommend a slight forward and backward swing to be finished with a short vigorous forward leg kick. The forward rather than forward and upward kick keeps the putter close to the ground and assists in maintaining the approximate upright body position. Most putters put a tremendous amount of exertion into this starting action and then fight to regain the loss of balance. Brix sways forward with no appreciable effort,



*Rothert: Correct putting stance with delayed reverse. In this picture there is evidence of a lack of his customary knee bend.*



*Rothert: Further evidence of delayed reverse so as to time with putting action.*

while Rothert makes the entire action by driving off the rear leg and staying ahead of it. The spikes often scratch the ground when this movement is properly accomplished. Brix uses very little preliminary knee bend, while Rothert uses quite a bit with his method. Both men allow the body to go along with the action with an unchanged position.

#### *Landing from Travel*

In practice, Templeton stresses a simultaneous foot landing. I have always used this same method knowing that in competition the forward foot will land shortly after the rear foot. The object, of course, is to eliminate through habit a tendency to "rock forward." This "rocking" action shortens the arm action and hurries the put. It also destroys any chance to get the correct altitude.

An attempt is also made in practice to land with both feet on a line, although the correct putting stance will find the forward foot slightly to the left of a straight line. Landing with the forward foot quite a bit to the left shortens the put and is ruinous to good distances. Brix relaxes both knees on landing to take off the jar and as an aid to balance. The knees and toes point slightly outward at this point for stability. Rothert retains about the same position used at the start of his action, which, as has been explained, calls for a bent knee posi-

tion. The position at this time may be compared to the balanced boxer's stance, with the forward leg sufficiently anchored to permit a forward movement and the rear leg holding the bulk of the body weight and equally prepared to go forward or backward. Too wide a leg spread makes difficult a quick reverse and put. Too small a spread handicaps the put and hinders the balance. Bending the upper body backward sharply at the waist or throwing the entire body backward in an attempt to get under the shot is a poor practice.



*Herman Brix: This shows the proper arm action, but the full follow-through is lacking. The forward foot should not be pointed toward the toe-board in this fashion. An additional follow-through would properly place the side of the foot against the toe-board. The leg, in that case, would be kicked backward and upward. The free arm would also show more backward motion. The correct finish always finds the right side of the body (for a right-handed man) pointed toward the line of the put.*

At the time of landing it is essential that the body drop directly downward, with the knees and upper leg muscles taking the strain. In this way only may an upright balanced position be maintained. It is like the first part of a "squat" exercise.

The entire circle should not be used when making the hop. At least twelve inches should remain for the final advancing put and reverse. When the putter uses the entire circle he is forced to make a stationary reverse with a great loss of final momentum. Few realize this fact.

#### *The Put and Reverse*

The reverse should be slightly delayed so as to conform in "timing"

with the putting action of the arm. Generally speaking, the putting action starts to accelerate when the hand reaches the best leverage position, which is a point approximately opposite the shoulder or slightly ahead of it. The actual put is a perfectly straight upward pushing action from the leverage point to the time of release and should be sufficiently upward to give the desired height. The action is therefore first upward and then outward. The final action culminates with a series of simultaneous explosions starting with the push from the feet, taking in the reflex action of the rear knee, the hip snap, the shoulder lift, the elbow reflex action, and ending with the finger snap. Properly timed it will result in a decided upward action that is much faster than



*Rothert: Toe and body should not take this forward-facing position. Right side of body should be in evidence. Otherwise excellent finish action.*

the slow, heavy, slightly circular shove. The action is a build-up effect with all the speed culminating in this final action.

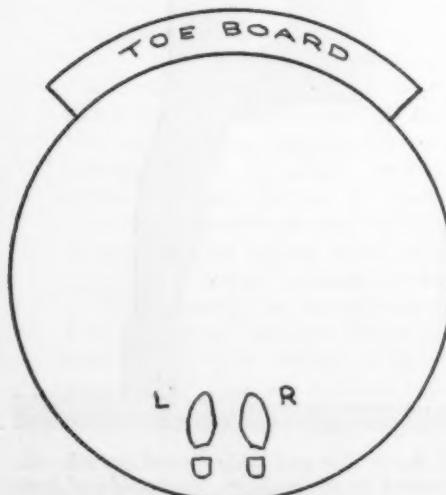
The correct timing of the arm and body action should create a slight tendency to foul. This can easily be controlled by kicking the free leg backward and upward which produces a tendency to swing around into the circle. The free arm is active throughout the entire action and assists in the final kick of the putting arm as well as in maintaining the finish balance.

#### *The Finish Position*

The side of the rear foot should rest against the side of the toe-board as the final put is being made. The putter, at the time of release, should find himself leaning his upper body well over the toe-board so as to get the last possible inch out of the effort. The lunging type of finish that is possible when space is reserved for the reverse more than compensates for any loss of speed that results from a shorter hop.

#### *Practice*

The athlete should practice "puts from stand" without the reverse to get the idea of the correct body angle finish. This should be followed by "puts from stand" with a reverse so as to learn the timing of the put and reverse. The full travel should then be learned. The experienced putter should, once condition has been gained, put three times a week. He should devote at least one-third of his time to "puts from stand" and conclude with the full action. Ten of the former followed by ten easy practice puts (full action) and six best effort puts should constitute a day's work.



DIAG. 1

Jogging and a little track work should be in order two afternoons a week. Exercises to strengthen the leg muscles are always in order, as are any exercises or stunts capable of inducing good balance. Mental composure is essential in this event and every effort should be made to develop this ability to concentrate with composure. Good habits learned in practice will be found invaluable.

#### *Discussion of Championship Form*

Herman Brix, American Champion, Los Angeles Athletic Club. Brix uses what may be called a triple action. Certainly it is the most complicated of all styles used to date. His present style was evolved after two years experimentation and is designed to fit his particular requirements. His start is the essence of relaxation and he drops into his putting stance with the same ease. Much of this is due to the fact that he uses his legs to their fullest extent to get in and out of his "set" position. His elbow drops back at the time of landing and he sways with the elbow snap. Both knees relax still further during this timed movement to give the full leg crouch. He then swings forward past his original landing position, dropping his right



DIAG. 2

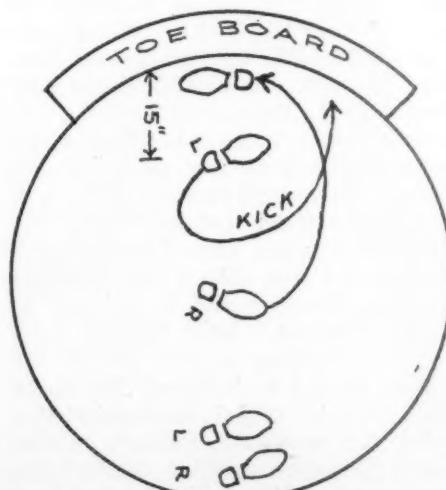
hip slightly and transferring a portion of his weight to the forward anchored leg. This puts him in position for the quick arm push which co-ordinates with his leg reverse and gives him the upward push or lift. His best put of 52 feet 7½ inches seemed an exceedingly slow effort by reason of his attention to all of the movements mentioned. Eliminating any of the essentials produces a fast forward momentum and a low fast put that loses a foot or more in distance. Only

a putter possessing exceedingly strong legs could use this scientific form. His best practice efforts range from one to two feet behind his competitive marks. The action mentioned is, of course, continuous.

Harlow Rothert, Intercollegiate Champion, formerly of Stanford, now competing for the Los Angeles Athletic Club. Rothert gets his distance by equally rhythmic action. It is less complicated than the style used by Brix but almost as effortless. At no time does he attempt to hurry his action. He drops into a position that is held throughout the travel, and from this crouch drives to the center of the circle. His method of holding the shot insures the straight line drive, and his body is always under control and poised above the sustaining rear leg. His form is less complicated and therefore produces a better average performance than most putters because of his adherence to correct practice habits. Like Brix, Rothert is highly competitive, and does his best under a competitive strain.

Leo Sexton, New York Athletic Club, Indoor Champion. Sexton, like Rose, has a terrific advantage in possessing exceptional strength, weight, height and agility. His ability to do well in various events makes him the greatest potential putter of this time. His competitive puts do not compare with his best practice puts. His preliminary action is not good in that it does not aid the final action, but in spite of this travel fault he drops easily into a putting stance that is marred only by too much backward lean. His arm strength and arm speed, coupled with his natural co-ordination, are responsible for his recent success.

Manley Edwards, Los Angeles Athletic Club, National Junior Record Holder. A lack of a definite steady



DIAG. 3

form prevents this veteran from reaching the distances of the former champions. A nervous tendency to rush the action prevents his getting set for the final push.

John Kuck, Olympic Champion, Los Angeles Athletic Club. Kuck possesses the greatest arm speed ever witnessed in a contest of this kind. With it he combines a certain all-around ability that permits him to reach amazing distances in practice. He has been able to do well from good as well as poor putting positions, naturally allowing the body to compensate for his mistakes in the travel while dropping into his putting stance. His natural arm ability is doubtless responsible for his failure to perfect the balance of his action. Brix and Rothert are examples of athletes who have lacked great physical strength and weight, and it is purely through their devotion to form that they have been able to make up for this deficiency.

The diagrams may give a rough

idea of the foot positions in the shot put. The forward-facing start position, shown in Diagram 1, makes an easy forward progress but requires

a hip twist to drop into the regulation putting stance. The diagonal form in Diagram 2 is recommended as a nice compromise and is easy to learn. It gives sufficient starting momentum for almost any putter. The side-facing position shown in Diagram 3 is not good for most putters, although a few use it in good shape.

The left foot in each instance (for a right-handed man) lands with the toe pointing diagonally ahead, the right foot pointing slightly backward. This gives the knees an "out" position. The length of spread and distance of the forward foot from the toe-board depends upon the size of the individual, type of leg drive or leg kick and the necessity of forward reverse momentum. A few men, like Sexton, might safely leave less space and still do well by reason of form used and super arm speed.

NOTE: The landing action should be the same in all three starting methods.



*John Kuck: This clearly indicates his lack of attention to leg action and his dependence on arm action. Note the total lack of leg co-operation.*

## Behavior of the Discus in Flight

By JAMES A. TAYLOR  
ASSISTANT TO THE PRESIDENT, I. C. A. A. A. A.

THE I. C. A. A. A. in many ways and for many years has done its utmost to contribute to the advancement of track and field sports both in the management of games and the improvement of the technique of events. In deciding on the merits of a discus record some years ago the Association was brought squarely to a decision on how much assistance if any had been given to a discus by a quartering wind of six miles per hour blowing against the flight of the implement. The judge decided against the record and the study discussed herein was started by authorization of the Executive Committee.

It was astonishing to the writer how little was actually known either by those who threw the discus or had reason to feel that they were competent to pass on the question as to certain of the elements and forces involved and the results of these forces measured in distance of throw. There were even no scientific data available to measure the forces and elements involved. It is in the first place obviously impossible to measure such forces while the implement is free in the air. The angle of elevation of the implement, the angle of throw, initial velocity, twist and spin in the air and the force, direction and character of the wind are all not only uncertain

and varying but extremely important elements.

The problem presents fascinating features and the purpose of the quest was to substitute facts for conjecture as far as possible and to lay down at least some general rules to guide the athlete and the judge passing on his performances. Until a year ago, the guess of one man was as good as that of another on the state of the wind. The deflection of a handkerchief was the gauge of whether a record should stand or not, irrespective of whether the handkerchief was silk and dry or heavy linen and damp. The invention of the automatic anemometer by the writer has placed in the hands of officials an instrument where the state of the wind and its direction are now matters of easy ascertainment and permanent record. With the facts about the wind known, the way was open to determine the effects of the same on an implement.

It was realized at once that only experiments in a wind tunnel could answer the questions involved. The matter of conducting such a study was taken up with the Daniel Guggenheim School of Aeronautics at New York University. Through the courtesy of Professor Alexander Klemin, Director of the School, and Mr. Benjamin F. Ruffner, Instructor on the school staff, careful and elaborate tests were made

in one of the school wind tunnels. After numerous conferences and the adoption of the necessary formulae, painstaking and intricate computations were made and the results charted. So far as is known, these experiments and the reduction of the results to scientific formulae are unique. Many are not exhaustive and for reasons of time and expense do not cover the intricate effects of the various quartering winds nor the results of the gyroscopic motion of the discus. Both of these features are interesting and at some future time should be studied.

The problem was attacked along certain lines to ascertain the effect of a given wind against a discus at various angles of inclination and to determine not only the influence of the wind as affecting a record, but as a guide to the most advantageous angle to throw the implement.

The object of the study was to find:

1. The effect of a wind against the course of the discus.
2. The effect of a wind following the course of the discus.

A discus was suspended in the wind tunnel by wires attached to delicate measuring and recording instruments and a careful record kept of the drag, that is the tendency to be pushed backward, and the lift or elevating tendency due to the wind striking the

under surface of the discus, with consequent partial vacuum on top and back, for many angles of inclination of the implement from horizontal to vertical and then backward to horizontal. The first computations were made allowing for the lift and the resistance of the discus moving through still air. This basic velocity of throw was determined by timing with a stop watch many actual throws by good competitors, measuring the distance and computing the speed. Thereafter other tests were made at various angles and the data used for progressive computations. Slow motion pictures were taken of the discus in flight at the I. C. A. A. A. Games and at New York University to determine whether the discus changed its angle of inclination during flight. These pictures were taken from a distance on a line with the center of the arc described by the discus and also from behind and, while not wholly satisfactory, showed fairly clearly that the initial path angle and the angle of inclination as to the ground were the same and the discus did not change its angle of inclination but remained at the same angle which it had when leaving the hand. Of course, the angle of the discus to the resultant wind was changing constantly. This is probably because the spin of the discus on its own axis has a gyroscopic stabilizing effect which tends to prevent a change in the initial inclination angle with the horizon. Incidentally, pictures of a discus painted half white and half black taken from behind the thrower showed that the discus made from 18 to 21 complete

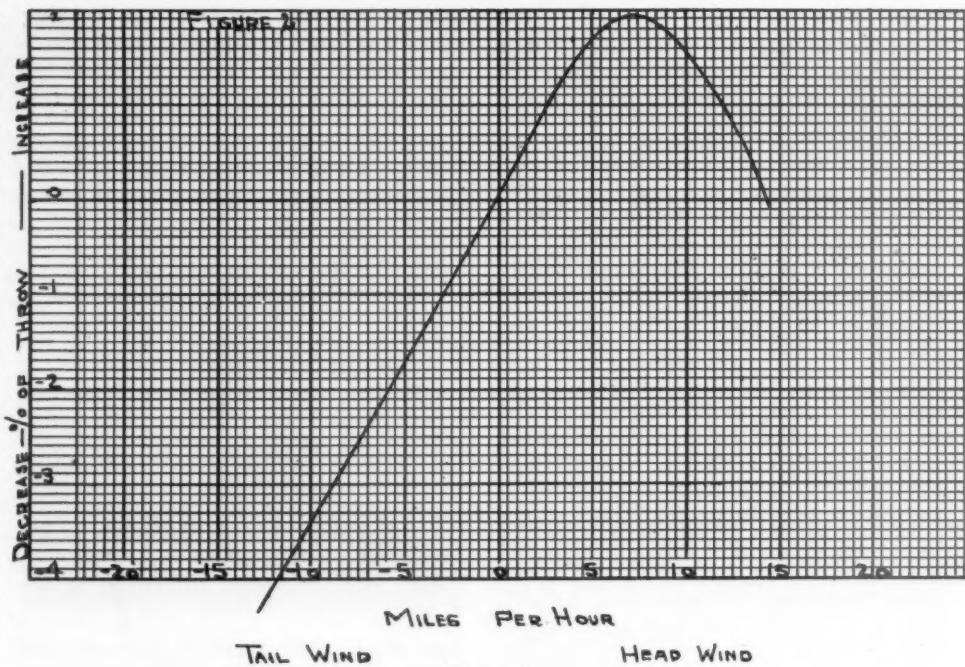


Figure 2  
TAIL WIND HEAD WIND

The curves shown are merely illustrative. The greatest assistance is given by a head wind of from 7 to 8 miles per hour. The curves shown are for winds of 3.41 and 10.23 miles per hour for the purpose of calling attention to the fact that winds stronger than the most advantageous ones may be of greater help than some of those below the peak.

revolutions in flight. While these revolutions are sufficient to steady the implement, the aerodynamic effect is believed to be not great enough to affect the distance seriously.

The result was most interesting, as is clearly indicated by the accompanying graphs. It is obvious that the net result is a component of three forces besides gravity, which is constant. These three forces are drag, lift and momentum. As shown by the drag curve and the lift curve, these forces vary with the varying angles of the

wind and as the square of the resultant velocity.

It is necessary first to understand how the various forces act upon the discus when the discus is moving forward against either still air or air in motion for the character of the force is the same in either case, although the strength of the forces varies with the speed of the resultant wind. As an object moves forward, it tends to create a vacuum or rarefied air in back of it. Due to the shape of the discus when thrown at an angle upward from the horizontal and less than vertical the partial vacuum is in back and on top. But there is pressure always below, both the normal pressure due to its own motion and also the pressure of any wind which may be blowing. There is, therefore, a constant pushing of the discus up into this partial vacuum. This is the lift and this is what tends to make the discus overcome the force of gravity to that extent and appear under certain circumstances to sail. This happens both in still air and when the wind is blowing against the course of the discus. The natural inference is, then, the stronger the head wind the higher the discus goes and the longer it remains in the air and hence the further it would go. This is partially true, but only up to a certain point. The strength of the wind finally becomes such that it kills momentum or forward motion of the discus and while the same goes higher it falls down straighter and hence covers less

(Continued on page 45)

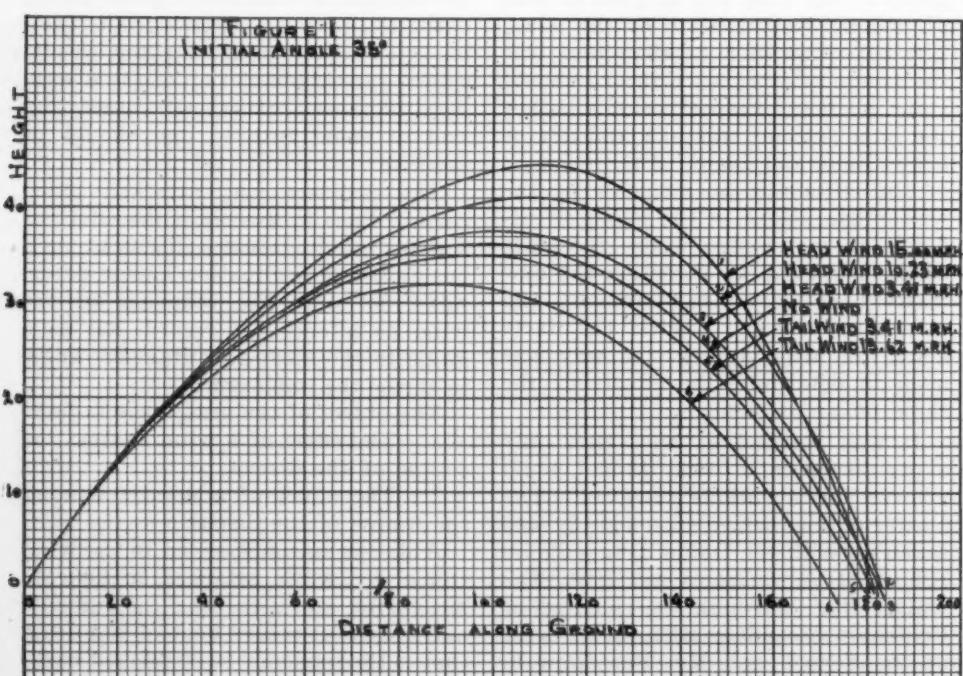


Figure 1

# High Jump Exercises for Teaching the Eastern or Western Form

By A. M. (BERT) BARRON  
TRACK COACH, SWARTHMORE COLLEGE

THE use of the scissors form in the high jump results in wasted effort and decreased height. To attain greater height with less effort is possible by using the Eastern and Western forms. To convert a scissors jumper quickly to one of the approved forms is easily accomplished by the use of three simple exercises, with which I have had considerable success.

*Exercise No. 1.*—The jumper stands with his weight on his natural take-off foot. For some boys this will be the left foot, for others the right foot.

Assume that we are working with a jumper who naturally takes off from the left foot. While facing straight to the front, the athlete jumps in the air from his left foot, raising the right knee as high in the air as possible and at the same time using an upward pull with both arms, to obtain a greater lift. The jumper must go up and come down on the same spot. (Stress this fact.) The right leg comes down more slowly. There is no attempt to make any body turn while doing this first exercise.

Many boys who have been jumping the scissors form, taking off from one foot and landing on the other foot, will want to do the same in this exer-

cise; that is, they will jump from one foot and want to land on the other foot. This should be immediately corrected.

*Exercise No. 2.*—The athlete stands one short step back of the take-off spot, takes one short step forward and jumps in the air from the left foot.



Figure 1



Figure 2

The right leg is extended with a stiff knee, much as a kicker in football, outward and upward. The jumper goes up and comes down on the same spot, as any forward movement will defeat the purpose by losing control of the body weight. These two exercises are all that are actually needed for the athletes who jump the Western form.

*Exercise No. 3.*—This is essentially for boys who jump the Eastern form, but it is best to give all of the boys the three exercises, for, until one sees them actually jump over the cross-bar, it is difficult to determine which is their natural style of high jumping.

The athlete takes a short step forward, stamps from the take-off foot, keeping the knee stiff, obtains an upward swing by kicking up the other leg backward as high as the head or higher, and when the greatest height is reached the body turn or cut-off is obtained by the swing backward of the arm on the same side as the take-off foot. If the take-off foot is the left, the left arm swings backward. This backward swing of the arms aids in turning the body and hips, and the jumper comes down in much the same manner as a high jumper does after having cleared the bar. In other words, this is a practice jump in the

(Continued on page 26)



Figure 3

# Financing the High School Athletic Department

## Personnel and Finance in a Large High School

By HOWARD E. BEATTY

ATHLETIC DIRECTOR, SAGINAW HIGH SCHOOL, SAGINAW, MICHIGAN

SAGINAW HIGH SCHOOL is situated in Saginaw, Michigan. It has an enrollment of 1500 students, having increased from an enrollment of 1000 students during the past two years. Saginaw has a population of 75,000, with two public high schools and five parochial high schools.

Our athletic field is located in the residential section of the city, about ten blocks from the high school. The field contains five and one-half acres and is entirely surrounded by a brick wall, about nine feet high. It contains our football field, a quarter-mile running track and two clay tennis courts. Our baseball diamond is laid out on the football field. The locker section and quarters for the caretaker contain: two locker rooms, lecture room, coaches' offices, drying room, equipment room and storage space for portable bleachers, hurdles, etc. (I wish to stress the use of portable bleachers for high school fields. They cost less and can be easily placed for football, baseball, track or tennis. Permanent bleachers, used only during the football season, occupy space which should be used for athletics during the rest of the year and are a constant drain on the school treasury for upkeep.)

Our Board of Education hires the caretaker of our athletic field and maintains the field, except that game preparations are made by the athletic department. During the basketball season, the Board furnishes the gymnasium, and the Athletic Department furnishes the janitorial service, when games are played.

Saginaw High School maintains the following interscholastic teams: football (varsity and reserve), basketball (varsity and reserve), baseball, track, tennis, wrestling and gym teams. Over 60 per cent of our boys engage in athletics, intramural or interscholastic. Our teams are well equipped and our school treasury is in excellent condition.

I will explain our athletic set-up in two parts: personnel and financial.

### Personnel

The Principal of the high school has complete charge of our athletics and delegates to the Athletic Director, Faculty Manager and Coaches their various duties. He O.K.'s the expenditures of all monies, and a report of all receipts is given after each game to him by the Faculty Manager, as well as monthly financial statements.

*THE average high school coach, intent upon teaching his teams the technique of sports, has all too little time to devote to the perplexing but necessary problem of financing these teams. With this in mind, THE ATHLETIC JOURNAL announced in the February issue a contest for the best articles dealing with financial problems in the high school athletic department. The following articles were written in response to that announcement and contain suggestions which will undoubtedly be helpful.*

*The schools dealt with by these articles range in size from Erie East High, having an enrollment of 1765, to those of less than 100 students. In addition, several different sections of the country and various types of communities are represented.*

The Principal checks the eligibility lists and arranges the pep meetings.

The Athletic Department has a personnel of four men, all of whom are full time teachers in the high school. The Athletic Director also coaches football and track and assists with basketball. The basketball coach also coaches tennis and assists with football. The baseball coach also coaches the wrestling and gym teams and assists with football. The Faculty Manager handles the finances and game preparations.

The Athletic Director makes the schedules, hires officials, purchases the equipment and checks the work in general.

The coaches are responsible for the coaching of the team, conduct of players and care of equipment during the playing season.

The Faculty Manager has charge of finances, advertising, game preparation, sale of tickets and transportation.

### Financial

Our gate receipts entirely finance our athletic program with a profit at the close of each school year. At the beginning of each semester, we sell Student Union tickets for \$1.00. This entitles the holder to receive a copy of the school paper each week, to attend all home athletic contests, school plays, musicals, debates and any other all-school activity that we may wish to sponsor. About 80 per cent of the student body purchases these tickets. These students are fine boosters and advertise our games to the public. The money received from the sale of Student Union tickets is used to finance all the school's activities, except athletics. Our admission charges are, for football, baseball, basketball and track, 25 cents to children below high school age and 50 cents to others (except our football game with Arthur Hill of Saginaw on Thanksgiving Day); tennis, wrestling and gym contests are free.

The advantages of the Student Union ticket are that it gives the students almost 100 per cent participation in school activities at a very small cost and increases our adult attendance, because of the student advertising of games.

Let me add a few details, which will help to make successful high school athletics:

1. The Principal of the high school must be in charge, insist on strict eligibility of athletes and keep the school morale on a high plane.
2. The coach must have complete charge of the team, and players must understand that he is in charge.
3. The members of the Athletic Department must work in strict harmony.
4. Contests must be well advertised.
5. The athletic program must be attractive to the students.
6. Athletic teams must be adequately, but not lavishly, equipped.
7. Boys should be urged to report for more than one sport. This keeps them in a constant state of development, both mentally and physically, throughout the school year.
8. Athletes must be conditioned

- gradually and be in good physical condition before entering contests.
9. Never use an injured player. Substitute frequently in contests.
  10. Pay strict attention to details and fundamentals.
  11. Teach the boys to play hard but fairly.
  12. Have only a few training rules, which must be strictly observed.
  13. High school leagues, preferably with schools of the same size, located as near to each other as possible, make for better athletics. The competition is keener and rivalry over a period of years makes the gate receipts better. Minor difficulties are easily ironed out in league meetings. (We have been members of the Saginaw Valley League, consisting of six schools, since 1905.)
  14. Athletics are a definite part of our educational program and are essential to a well-rounded education.
  15. Intersectional high school contests are unnecessary and should be prohibited.

## *Organization and Administration of Athletics*

By J. F. HYDE

DIRECTOR OF ATHLETICS, ERIE EAST HIGH SCHOOL, ERIE, PENNSYLVANIA

ERIE East High School is a combined senior and junior high school, seventh to twelfth grades inclusive. The total enrollment is 1765 students of which about 900 are boys.

The physical education and athletic activities are controlled by an Advisory Committee, consisting of:

The Principal, who acts as President of the Committee, coaches golf and tennis and is responsible for eligibility.

The Assistant Principal, who acts as faculty advisor and promoter of all activities, and sanctions the expenditure of all athletic funds.

The Treasurer, who is a member of the faculty and who has charge of all ticket sales and all financial details.

Boys' Director of Physical Education and Athletics, who teaches boys' physical education classes, coaches varsity football and basketball, and directs all intramural sports.

A swimming coach, who teaches all swimming classes, coaches swimming, water polo, junior high basketball, boxing and wrestling and is assistant football coach.

A track coach, who teaches academic subjects, acts as varsity track coach and assistant football coach.

Girls' Director of Physical Education and Athletics, who teaches all physical education classes and coaches all girls' athletics.

The athletic sports sponsored are football, basketball, track, swimming, water polo, golf, tennis, junior high basketball, junior high baseball and junior high track.

The intramural sports sponsored are football, basketball, track, boxing and wrestling.

### *Finances*

The chief sources of finances are gate receipts of football, basketball, and gym exhibition by the combined boys' and girls' physical education classes.

### *Financial Control*

All sports are placed on a budget plan. The faculty advisor sets the amount of money to be spent on each sport and it is the duty of the Athletic Director to keep the expense of each sport within its budget. A requisition system is used by which the Athletic Director makes out a requisition for everything he needs. This requisition must be signed by the Faculty Advisor, a duplicate copy is placed in the hands of the Treasurer for checking all bills and a copy is also kept on file by the Athletic Director.

Each check drawn by the Treasurer is covered by a voucher and each voucher is covered by a requisition. A centralized accounting system, on a cash basis, is used, with advanced bookkeeping students doing the work. Each sport has its own account, and loans may be made from one account to another, but no gift transfers are permitted. All checks are signed by the school Treasurer and the Principal.

### *Financial Results of Various Sports*

Football makes money, basketball just carries itself, while all the other activities are carried by football.

### *Athletic Equipment*

All athletic equipment is purchased by the Athletic Director, and the Assistant Football Coach has full responsibility for the care of all athletic equipment. Every article is checked very closely and our loss in equipment is very small. We are able to add considerably each year to the amount of equipment that we have on hand.

Through our varsity and intramural sports we are able to reach almost every student in school with some form of physical activity, and it is our aim to reach every student in the near future.

## *Reducing Expenses to Meet Reduced Income*

By CHESTER HILL  
ATHLETIC DIRECTOR, KOKOMO HIGH SCHOOL, KOKOMO, INDIANA

GENERAL deflated business and working conditions have turned the financing of high school athletics in many Indiana cities "inside out." Only a few of the schools whose football or basketball teams are riding "on top" have been able to run along this year without some type of retrenchment. But, even these few fortunate schools have experienced a decided decline in gate receipts, except when the opposition happened to be "a natural rival" or gave promise of extending the favorite to the limit. Then, and then only, have "standing room only" signs, which have been hung out frequently in the last few years, been posted this year.

Why is the matter of gate receipts and the financing of high school athletics so closely related? It is because most Indiana schools, particularly those in the larger cities, have accepted the method of erecting gyms and other athletic plants and financing the equipment of teams outside of the taxing fund of the school city corporations. Most of the larger high schools of Indiana have formed building associations or holding companies through which huge athletic plants have been built with funds derived from games rather than by the schools as a tax unit. So, with considerable debt still hanging on most of these plants and with the receipts of games materially reduced, athletic authorities have been forced to curtail expenses.

Kokomo High School, and its athletic financing plan, may be taken as a fair average of Indiana schools that have used the plan. And, the curtailing methods used, too, may be taken as an average. Some schools have built larger plants; some have built smaller. Some schools have been more successful in meeting their obligations; others less successful.

In our school of approximately 1500 students, located in a manufacturing city of 32,000 population, gross football receipts for the season of 1931 equalled one-fourth of the receipts of the season of 1929. About the same teams were played, their relative strength compared to ours was about the same, yet the turnstiles failed to click.

Basketball, the chief revenue-producing sport in our program, has netted far less this season (1931-32) than for any one of the preceding six seasons. Season ticket sales for bas-

ketball were but a small percentage short of the normal sale, but single game admissions have fallen off nearly one-half. This, of course, may be due almost entirely to the fact that our team has had a poor season in point of games won and lost.

The reason that this falling off of revenue from games means so much in Kokomo High School, and in many of the other schools of Indiana, is that the entire athletic program of the schools, except salaries of coaches and assistants, is maintained by gate receipts. Buildings have been built, fields have been laid out, equipment for both varsity and intramural teams is maintained, trips are financed and even junior high and grade school athletic programs are made possible by a finance plan which has its basis in game receipts.

Realizing in 1925 that the school was greatly in need of a gymnasium, a football field and a running track, we began our plan by incorporating the Kokomo High School Athletic Association—the personnel of which was a group of high school teachers. The Association immediately issued bonds in the amount of \$40,000, bearing interest at the rate of 6 per cent. These bonds sold readily. The money thus raised, together with approximately \$20,000 that had accrued from successful past seasons and an almost phenomenal season basketball ticket sale that year, gave the association a working capital of \$60,000.

The city school board gave the Association a site, large enough for a gymnasium, which adjoined the high school building. The Association then contracted for the building of a gym, costing \$60,000, which has a seating capacity of 3,200.

Three years later, the President of the School Board gave the Association a plot of ground near the high school building and gymnasium. This plot, considered waste land, we improved into an up-to-date athletic field with a football field built to grade with a one-foot cone and turfed with blue grass, and an eight-lane cinder track with a 220-yard straightaway. The field was enclosed with a board fence ten feet high along the property line, a chain-link steel fence along the street line and a chain-link fence between the field and the spectators. For the spectators, we erected a steel grandstand with roof, seating 2,800. Under the grandstand we built dressing rooms, shower rooms and rest rooms. The cost of the field was as follows: grading and filling field, \$400; sodding field, \$1,200; building track, \$400; grandstand and dressing rooms, \$18,000; wooden fence, \$500;

chain-link fence, \$2,000; a total cost of \$22,500.

The financing plan has reduced the indebtedness on the gymnasium to \$18,000, an amount which is in bonds still outstanding and due in 1935. It has reduced the indebtedness on the field to \$6,000, due in equal annual installments.

While decreasing the standing indebtedness on buildings, the Association has taken care of the running expenses of the Athletic Department. Equipment for both varsity and intramural sports in football, basketball and track has been purchased and issued to players. All trips in the three branches of sport and in golf and tennis have been financed.

To carry on this program of sports and to continue to reduce the indebtedness of the Association in the face of decreased receipts, some methods of curtailing expenses have been necessitated. The following have been set down in our school and rigidly followed during the last three seasons:

1. Schedule games with schools that are as near as possible, taking into consideration the drawing power of the teams.
2. Make all contracts, as far as possible, without a stipulated amount guaranteed visiting teams—play on home-and-home basis whenever possible.
3. Travel as much as possible by automobile, using autos of friends or parents of the boys. (The only expense attached to trips of this sort is for gasoline and oil, and even that is often refused.)
4. Provide a well-arranged store room under the control of a good dependable boy. This boy will save his wages many times. Invoice equipment to him and hold him responsible to a definite check-up on all equipment at the end of the school year. (Place equipment in the store room that can be used several years or which can be used in two or three sports. Use as much cotton equipment as possible, for it is not only cheaper but will clean better and will be free from moths. Teach the store room boy how to care for equipment, get him some tools, show him how to use a needle and thread, and provide him with plenty of saddle soap and oil for leather goods. Let him hand out first aid articles and check useless waste of such articles.)
5. Reduce printing to a minimum and use the school printing department.
6. Hire officials as near as possible to reduce traveling expenses.
7. Explain the condition of your finances to your boys—they will help economize on trips. (The real athlete gets his enjoyment out of the game itself and not from what he is going to get from the Athletic Association.)

We have found that strict adherence to these methods of economy during the last three years has enabled us to continue a well-balanced athletic program with our teams adequately and neatly equipped. And it has enabled us to continue the reduction of the original building debts, despite a sharp reduction in game receipts.

### *The Student Body Fee Weathers the Depression*

By CLARENCE HINES

ATHLETIC DIRECTOR, BEND, OREGON,  
HIGH SCHOOL

WHEN times are good the elusive dollar with which to finance athletics comes in through the gate, but when times are as they are now the dollars come in rather slowly, some of them not at all. Our school feels fortunate in having a sound and well established financial system which can hold its own even with "Old Man Depression."

In 1929 the Bend High School student body adopted by a very large majority a \$2.00 student body fee which was to cover admission to all regularly scheduled home athletic contests, a subscription to the school paper and admission to debates. In conjunction with the Principal, the Student Council apportioned this fee to various funds with the following percentages to each: student body general, 25 per cent; school paper, 25 per cent; football, 20 per cent; track, 15 per cent; basketball 7.5 per cent; baseball, 7.5 per cent. The needs of each fund were considered and the percentages of the total fee allowed only after careful consideration of past financial statements.

There are three important officers connected with student body finances. First, the Principal, who signs all requisitions and authorizes the payment of all bills; second, the Faculty Auditor, who keeps the accounts, audits them, and in general supervises the bookkeeping detail; third, the student body Treasurer, who, under the direction of the Principal and Auditor, collects and deposits all monies and writes checks for all bills. No bills are paid unless requisitions signed by the

Principal are presented, and the Principal's signature appears with that of the student body Treasurer on all checks.

Buying for all athletic sports is left in the hands of the coaches and the Athletic Director. Equipment needs are considered, and where buying is to be done in large quantities bids are asked. Requisitions are then written for the needed material, signed by the coach and indorsed by the Principal, and the goods are secured. Purchases made without the authority of the Principal are not paid for from student body funds.

Within each sport the amount allotted from the student fee with estimated gate receipts and receipts from guarantees for games away from home are combined for an estimate of the total receipts. The estimated disbursements are then figured and conformance as closely as possible to this budget is made at all times. In a sport such as football where equipment is costly and larger squads have to be taken on trips, a somewhat larger percentage is allowed for equipment and travel than is allowed in basketball. Typical percentages which have worked out well in football are: equipment, 25 per cent; travel, 40 per cent; officials, 10 per cent; miscellaneous (cleaning, laundry, telephone, advertising), 25 per cent.

Bend is a community in which lumbering is the chief industry. There are two large sawmills. The population is about 8,900. Gate receipts come largely from the business and professional men. In 1929 the football team had a very successful season and played for the state title on Thanksgiving. Gate receipts at the end of the season left a surplus of almost \$2,000. In 1930 the team won just half its games, the depression had started and the student body fee was the salvation of football finances. During 1931 the team was successful again and drew more cash customers to the gate than in 1930, but again the amount received from the student fee was the difference between going in the red and finishing clear of debt.

During the present school year \$1,160.00 was collected from student fees. Of this amount football received \$232.00; track, \$174.00; basketball and baseball, \$84.00 each. Each of these amounts practically insures that the sport will not show a loss for the season.

A typical financial report follows:

#### FINANCIAL REPORT OF FOOTBALL December 15, 1930

##### Disburse-

Item	Receipts	ments
Guarantees . . . . .	\$1,045.00	\$ 440.00
Gate receipts . . . . .	632.00	

Season tickets . . . . .	162.00	
Student body fees. . . . .	203.00	
Officials . . . . .	218.00	
Equipment . . . . .	300.01	
Trainer's supplies. . . . .	32.38	
Advertising and re-pairing . . . . .	49.92	
Trip expenses . . . . .	786.00	
Laundry . . . . .	73.90	
Telephone . . . . .	22.33	
	\$2,042.00	\$1,922.54
Balance credit . . . . .	119.46	
	\$2,042.00	\$2,042.00

#### Note Receivable Property

Football Fund . . . . .	\$1,500.00
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An example of the type of budget which we require coaches to make for each sport:

#### TRACK BUDGET, 1932

Item	Receipts	Disbursements
From student fees . . . . .	\$174.00	
Equipment:		
15 sweatsuits . . . . .	\$ 24.75	
3 pairs track pants . . . . .	2.70	
3 jerseys . . . . .	5.25	
1 vaulting pole . . . . .	5.00	
Bend Invitation Meet . . . . .	25.00	
Central Oregon Meet . . . . .	10.00	
20-30 Club Meet . . . . .	25.00	
State Meet . . . . .	40.00	
Care of track . . . . .	25.00	
Lime . . . . .	3.75	
	\$174.00	\$166.45

Certain decided advantages from a financial standpoint have become apparent as the student body fee system has continued in use. First, there is always on hand at the time the season starts some ready cash with which to purchase much needed equipment; second, the entire student body is contributing something to the maintenance of sports; third, revenue from the students has increased about one-third. From each of these things it can be readily seen that when we say that our athletic finances have weathered the depression we give to the student fee its full share of the credit.

#### An Established Financial System

By OLAF E. ROBINSON

ATHLETIC DIRECTOR, CENTRAL HIGH SCHOOL, CAPE GIRARDEAU, MISSOURI

CENTRAL HIGH SCHOOL of Cape Girardeau, Missouri, has a unique and dependable plan whereby the athletic department is financed. I can take no credit for any part of this plan which was worked out some years ago by our enterprising principal; but, because I believe others in a

similar situation may be benefited, I want to outline it.

Each student from the sixth grade up through the high school is allowed to purchase a so-called "activity ticket" which is honored for admission to all athletic events, dramatic presentations and Lyceum courses, and entitles him to a copy of the school paper issued every two weeks. For this he pays ten cents a week for twenty-seven weeks, or he may pay the entire sum at once. In 1930-31, total receipts from the sale of such tickets were \$1602.30.

All activities, including athletics, are centered around a Financial Secretary, who is a member of the faculty. He conducts the work on a sound financial basis through a good accounting system. Requisitions for athletic expenditures are made out by the coach, checked by the Principal and referred to this Secretary, who takes care of payment. When such help as checking on student payments for activity tickets is needed, the general office help assists the Secretary.

Admissions to the various athletic contests, with proceeds in 1930-31, are as follows:

	Proceeds
Football:	
Adults . . . . .	\$0.50
Children . . . . .	.35
Thanksgiving (before)	
Adults . . . . .	.50
Children . . . . .	.35
Thanksgiving (at gate)	
Adults . . . . .	.75
Children . . . . .	.50
	\$1,308.50
Basketball:	
Adults . . . . .	.35
Children . . . . .	.25
	459.00
Track:	
We have sponsored no meets to date . . . . .	00.00
Total proceeds . . . . .	\$1,767.50
Guarantees (football) . . . . .	\$1,767.50
Guarantees (basketball) . . . . .	160.00
Tournament receipts and refunds (basketball) . . . . .	150.00
Total . . . . .	66.14
Total . . . . .	\$2,143.64

Separate accounts are kept for each of the athletic activities, and all gate receipts, guarantees and refunds on expenditures made from these funds are kept under their separate divisions. No attempt is made to budget these funds because there is no one general fund from which all these others come. At the end of the school year each account shows a deficit because student activity tickets have not yet been reckoned in. Just enough is

(Continued on page 30)

CLAUDE MILLER,  
ATHLETIC DIRECTOR,  
HIGH SCHOOL,  
VALLEY CITY, N. DAK.



R. A. HARRISON,  
ATHLETIC DIRECTOR,  
SENIOR HIGH SCHOOL,  
SPRINGFIELD,  
MO.



EUGENE THOMAS,  
CENTRAL HIGH SCHOOL,  
KALAMAZOO, MICH.



ROBERT D.  
BROWN,  
HIGH SCHOOL,  
FARGO, N. DAK.



# Helps and Helps

## FOOTBALL and

*by Prominent Midwest*

### *Conserving Energy in Basketball*

By CLAUDE MILLER

VALLEY CITY, NORTH DAKOTA, HIGH SCHOOL

BASKETBALL is commonly called a tearing-down game because of the severe strain demanded of each player. The players in this sport usually lose weight and very often go stale during the season. All five men must be ready to go at top speed throughout the game. A style of play which demands the least strain on the players is then the style of play which should be taught.

I believe the slow breaking offense with an occasional quick break is the best type of game for conserving energy. In this the men are stationed at points on the floor from which they can carry out certain set plays in an attempt to score. We use the center and two forwards ahead of the guards spread across the floor about the foul line or closer to the basket. The center or tallest man is at the foul line and plays are worked about him. The three forward men take their positions and do not move until the guards bring the ball up.

On many teams the forward men waste a great deal of energy in running, which only gets them back to the point from whence they started without having accomplished anything. If a player needs rest the time to take it is while his team has the ball; not when the other team has it. What offense gives him a better chance to conserve his energy than the slow break?

In order that the slow break be successfully carried out it is necessary that the boys are thoroughly trained in the fundamentals of the game; stressing quick starts, stops, pivots, feints, accurate passing and shooting. In this offense they do little moving but when they move they have a definite place to go and go fast. This offense works effectively against both zone and man-to-man defense. We use a blocking game against the man-to-man defense, and a passing game until the zone is maneuvered out of position; then we cut for the basket.

Hand-in-hand with the slow break goes the assigned man-to-man defense in which a man is put against a foe whom he is capable of matching with his own natural abilities. In this defense a man can relax whenever his opponent is out of the play, whereas in the zone defense all five men must be following the play at all times. In the zone, if only three offensive men are working hard it takes all five defensive men to stop them, or the zone is not effective.

# Hints on Coaching

## BASKETBALL

### High School Coaches

The slow break style of basketball is especially suited to high schools where the players are young and do not have the stamina required of the fast type of game. This can be adopted very well by schools which have a limited number of players. Practically all high school teams go through one or more tournaments in which the deciding factor is the condition of the team in the last game for the championship, which is the ultimate goal for all of us.

#### Meeting Varied Basketball Defenses

By R. A. HARRISON

SENIOR HIGH SCHOOL, SPRINGFIELD, MISSOURI

BASKETBALL is now in a transition period in southwest Missouri. During our season last year we played against the most varied types of defense that I have encountered in nine years of coaching basketball.

Some of the styles met were the five-man zone elastic defense, man-for-man under the basket, man-for-man defense all over the court, two-men up three-men back zone defense, and the so-called five of clubs defense.

We played the man-for-man defense under our own basket using a fast break when our opponents were sending more than three men through the first line of defense, and contenting ourselves with a slow break when promises of the ball meant more than the chance of scoring a basket.

The big problem in basketball now is finding time to teach enough plays to solve all of the varied types of defenses offered by opposing coaches. Plays that work successfully on our own type of defense may flop miserably when used against other types.

Here is my solution to the problem. I use four teams other than my first fifteen varsity players and each team uses a different type of defense when it scrimmages the varsity.

#### Basketball Training for the Younger Boys

By J. R. DUNMIRE

LEAD, SOUTH DAKOTA, HIGH SCHOOL

THE training of basketball players while still quite young has paid dividends in our school. From November 15 until March 15 our gymnasium is used every available minute from nine in the morning until nine in the evening. During



C. A. MUHL, UNIVERSITY CITY HIGH SCHOOL, ST. LOUIS, MO.



GLEN HANNA, HIGH SCHOOL, MOORHEAD, MINN.



L. C. MC MAHON, BASKETBALL COACH, HIGH SCHOOL, MANDAN, N. DAK.



EDWARD BOHNHOFF, CENTRAL HIGH SCHOOL, GRAND FORKS, N. DAK.

the school day it is used for the boys' and girls' physical education classes; the rest of the time for regularly scheduled basketball practices.

We divide the boys from the seventh grade on according to weights after a first and second squad has been selected. We have the following weight classes: 85, 100, 115 and over 115 pounds. Each squad is coached by a member of the faculty three hours periods per week, with the exception of the first and second squads which practice five times per week for one and one-half hours. The fifth and sixth grades practice on Saturday, and a tournament is staged at the end of the season for a room championship.

One period per week is used as a game period either between the squad members or between squads, matching the weaker members of a heavier squad against the stronger of a lighter.

Fundamentals are stressed at the practice sessions and it is surprising how quick and how well the youngsters learn to pivot, pass, dribble and shoot correctly.

In the spring a junior basketball tourney is held. Teams representing these weight divisions from nearby towns are invited with the provision that no boy who has played on a first or second team representing his school is eligible. Last year we had thirty-two teams; 232 boys representing seventeen towns entered. Playing time was naturally shortened for these younger boys.

The result of this system is that we give opportunity for a large number to get basketball training under competent instruction and that we always have basketball players coming along to play on the high school team.

## Physical Condition Is Essential

By DOUGLAS F. SMITH

DEVILS LAKE, NORTH DAKOTA, HIGH SCHOOL

A COACH who puts a poorly conditioned team on the football field is courting trouble. Injuries have a demoralizing effect upon a football squad. I have always noticed that there are far more injuries to football players during the early part of the season than during the latter part. This tends to prove that as the players' physical condition improves the injuries decrease.

In conditioning a team a well-organized grass drill is essential. It should constitute the first ten or fifteen minutes of every practice session from the start to the very end of the season. If there is plenty of variety

in the exercises used and if they are made fast and snappy, I find that the boys enjoy rather than dislike this part of the practice session. In selecting exercises to use, plenty of ground work should be included: tumbling, rolling, somersaulting, etc. The boy must learn to throw himself recklessly at the ground in any direction and be able to handle himself so as to avoid injury; in other words, he must get the "feel" of the ground and not be afraid of it. A player hits the ground many times during a game and many injuries are the direct result of contact with the ground.

Coaches should remember that scrimmage is not a conditioning exercise; it tears down rather than builds up.

I hold scrimmage only enough to see that the offense and defense are functioning as they should. I use



DOUGLAS SMITH, DIRECTOR OF ATHLETICS,  
DEVILS LAKE, N. D.



J. R. DUNMIRE, LEAD, S. D.

dummy scrimmage to check assignments on plays and spend the time on fundamentals rather than scrimmage.

I have found that more injuries occur in practice scrimmage than in actual games. This is due to the fact that the players are more alert and active and are putting more effort into their play while in a game than they do in practice. I have had two injuries to players, which might be classified as serious injuries, and they both happened in practice. In the past four years we have had nothing more serious than a sprain or a bruise. Energy must be stored up for each game, but conditioning exercises must not be neglected. Touch football is a good conditioner; it teaches a number of fundamental football movements and helps to keep the boys "on their mettle." It is especially good during the latter part of the playing season.

## Teaching Basketball Defense

By EUGENE S. THOMAS

CENTRAL HIGH SCHOOL, KALAMAZOO,  
MICHIGAN

ONE of the first things that a coach must decide before opening basketball practice is whether a man-for-man or zone defense will be taught. I have found that the man-for-man type is probably the best all-around defense. The common fault that we make is that we spend a lot of time in explaining whom each player is to guard and not enough time on how to guard. Defensive fundamentals must be practiced as faithfully as offensive stunts.

The player must be made to realize that he should constantly keep himself between his man and the basket in such a position that he can see the ball. To keep such a position, the guard must be able to shift quickly in any direction and still maintain perfect balance.

The ability to do this will depend upon stance and footwork. The weight should be carried on the balls of the feet; the knees should be bent and the hands held in front about shoulder high. In moving about, the fighter's style of footwork should be used as this insures constant balance.

An offensive man must be maneuvered toward the side line, as this restricts his field of action. If the offensive man is eligible for a dribble, the guard must approach him cautiously and allow no opportunity for a fast break to the basket. Should such an attempt be made, the guard must quickly retreat and then attempt to break up the dribble while in motion with the dribbler.

Another problem of this defense is how to keep from being blocked away from the man being covered. It is possible to avoid this by shifting men, but this is dangerous unless both guards make the change at once. I believe the simpler method is for one guard to go behind the other and then pick up his man. This is easily accomplished if the situation is sensed in time.

These simple fundamentals may be taught easily by having the players work against men who are practicing offensive fundamentals, and when well learned they fit the defense to meet either the fast breaking or delayed offense.

### Hints on the Dribble

By GLEN A. HANNA

MOOREHEAD, MINNESOTA, HIGH SCHOOL

THE dribble is one of the best offensive and defensive weapons in basketball when properly taught and executed.

The use of the dribble is usually indicated under the following circumstances:

To advance the ball rapidly from defensive to offensive territory.

By the guard, to get into the clear after taking the ball off the back-board.

To elude a guard when there is no one to pass to.

To elude a guard, for a close shot, when in scoring territory.

A player should never dribble when he can pass. A pass is faster and better except in the above instances.

As a rule, the dribble should be low and well in front of the dribbler. It is then easier to control and harder to break up. The dribbler should control the ball with the finger tips; the wrist should be flexible. Good dribblers use either hand equally well, controlling the ball largely through reflex action, while surveying the floor with their eyes.

Faking is an integral part of the good dribbler's repertoire. Fakes do not need to be exaggerated. A glance of the eye or the motion of a shot is enough to throw the guard off momentarily. Usually the dribbler goes where there is the most room; so he fakes to the narrow space and breaks to the open space, avoiding the side lines.

In dribbling around an opponent the player should advance the leg first that is next to the guard on the side he is going to and start the dribble with the hand farthest away from the guard. When executed in this manner it is hard for the guard to stop the dribbler without fouling.

When in shooting position a player

may fake a shot to draw the guard off balance. If the guard raises a hand to stop the shot, the player may dribble to that side; he can usually get by before the guard can recover to stop him.

Practice the dribble constantly. Insist on the proper technique. Teach by drills and scrimmage until it becomes second nature to execute it properly.

Teach by pairing men, one acting as guard, the other trying to dribble around him, using the above technique. Use dribble races to stimulate interest and teach proper form. Divide the squad equally, half at each end of the floor, giving each squad a ball. At a signal, leaders dribble to the opposite basket, shoot until the goal is made, then dribble back, shoot another goal and pass to the next man in line. The line finishing first wins. Have the dribblers alternate hands; this is fine for teaching use of the left hand. Another good drill is to allow one man to see how long he can keep the ball away from two guards by use of the dribble.

### Making Participation a Privilege

By ROY D. MCLEOD

BISMARCK, NORTH DAKOTA, HIGH SCHOOL

WE believe in athletic sports for the training the boys receive from their participation in them. In Bismarck high school the boys are trained to consider it a privilege to take part in athletics. They are taught that they are the ones receiving the benefits from competition, and not the school or the city. They are made to realize that we owe the athlete nothing except an opportunity to take part in sports.

If the students expect to accept this privilege they must maintain a passing average in their work without special attention or favors from the teachers or others. As long as we insist that all boys taking part in athletics, whether on class or school teams, be eligible by passing in the required number of subjects, we will have fewer failures, fewer problems of discipline and better athletic teams. Athletics will then be serving as a means to an end rather than an end in itself.

We believe in playing the game to win, as winning the game is accomplishing a purpose to which we have set our will. We have no patience with the boy who gloats over victory or offers an alibi in defeat. We have less patience with the boy who does not take defeat to heart; for if we are satisfied with defeat, we shall

never be winners in the game of life.

We are interested in the welfare of the individual but not in his self-glory unless it be just glory coming as a deserving member of a team. The team is the thing, and we will play our hardest for the team at all times. Self-glory can never compare with the satisfaction of being a member of a successful team.

The success of the team depends on co-operation and the will to win. A team that will not be beaten can not be beaten. If we play the game with all we have to give but play it according to the rules, we will be rewarded with success.

### Reducing the Number of Upsets

By ROBERT D. BROWN

FARGO, NORTH DAKOTA, HIGH SCHOOL

EACH year we read many accounts of the inferior team rising up to defeat a more powerful rival and thus eliminating the more logical team from the top of the conference standing. The cause of these defeats in nearly every instance is a lack of the right mental attitude.

Every coach knows that after the "big game" or the "natural rival" has been played there is a tendency for his team to play a mediocre game the following week-end. What does he do? In most instances he schedules a team which he feels can be easily defeated. That usually constitutes the major preparation for this game. Often the opposing team has been found to be too strong on that particular day.

The mental condition of the team must be coherent with the physical condition if the maximum performance is to be obtained. That is why a team plays at least one game during a season when the players are not functioning as a unit.

In talking with other coaches and from my own experience, I feel that too much is done to prepare a team mentally for the more important games. When the conditions favor your team to win that is the time, if any, to use a little psychology on your men. You can point out to the squad many instances of upsets where a team has relaxed and has been defeated by a team of lesser ability. Most likely the coach and players as well remember some such game in their own experience and the coach should capitalize on just such a sad experience. I would advise keeping a list from year to year of just such upsets. These will be valuable in helping to reduce to a minimum losses due to mental relaxation.

(Continued on page 43)

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JOHN L. GRIFFITH, Editor

## *When Good Times Return*

**I**N many of the large cities, office buildings were erected in the late pre-crash years with the reasonable expectation that the space in these buildings would be rented by tenants. Today, only from twenty to fifty per cent of the space is occupied by paying tenants.

In the years following the World War, thousands of miles of hard-surfaced roads were built to accommodate the needs of the American public that was making use of automobiles to secure rapid mobility. Today, one may drive for miles over some of the four-lane highways that were crowded with cars in 1929 without being impeded by traffic.

The colleges and universities in the last ten years erected large stadia which were frequently filled to overflowing. The crowds which attended football games this past year were from ten to twenty per cent smaller than the crowds that attended the same games in 1927, 1928 and 1929. Some are suggesting that never again will these stadia be crowded as before. We cannot see any reason for agreeing with the prophets of despair. We expect to live to see the office buildings in the thriving centers again comfortably filled. We believe that road building has just begun and that more and wider roads will be built to accommodate the motorists who, when good times return, will again take to the road. We believe, further, that when the billions of dollars that are now idle are again put to work the sum total that will be spent for football will exceed the amount that was spent annually in the peak years.

## *Soaking the Rich*

**N**OW that our local, state, and federal tax collecting and tax spending bodies have discovered that they have spent more money than they have collected, consideration is being given to the problem of how to get more money from the taxpayers.

It is obvious that our various governmental agencies must secure adequate funds with which to maintain such agencies as are necessary for the common good. There is naturally, however, divided opinion as to how the money is to be secured. No one should object to any fair method that may be devised for taxing the public, if the money secured will be honestly and wisely expended. Some, however, apparently believe that taxes should be imposed on certain individuals

and corporations with the thought that since these individuals and corporations had been successful their success somehow or other should be punished; that is, in common parlance an effort should be made to "soak the rich."

Whether we like it or not, we must admit that to a certain extent the socialistic doctrine has permeated our national philosophy. President Hoover some time ago called attention to the fact that there are some who would hold the speed of the fastest to the speed of the slowest. This is another way of suggesting that many apparently believe that the way to conserve the interests of the masses is by handicapping the superior or successful individuals. In a democracy we always find two classes of people, those who would elevate society by a leveling down process and those who would achieve the same results by a leveling up process.

We find this same type of thinking in relation to the athletic part of the educational program. Many have been proposing that in the interests of athletics for all, the sports that have been most successful should be curbed. President Coolidge has recently pointed out that if the wealth of the leaders in industry was confiscated for tax purposes the means of raising money for governmental purposes would be destroyed. If the sports that have been conducted on a paying basis were de-emphasized to the extent that the revenues from these sports would be decreased, it is difficult to see how intramural athletics and required physical education activities would thereby be promoted. The fact is that in some of the large universities where the football revenues have fallen off the minor sports programs have suffered. Intramural athletics will not be appreciably decreased during this period of financial depression in the institutions that are fortunate enough to have adequate grounds and buildings in which intercollegiate and intramural sports alike may be carried on. In the last analysis it costs comparatively little to maintain an intramural program in an institution that is fortunate enough to have sufficient playing fields and indoor floor space for athletics. The non-productive sports, however, such as intercollegiate gymnastics, fencing, soccer, cross-country running, swimming, baseball, tennis and golf, are being seriously curtailed.

The man who attacks the rich is very often animated by the very human quality of jealousy. If he himself had a million dollars the chances are that his attitude toward wealth would change very materially. Successful men are very seldom jealous of the success of others. With little men who have never enjoyed success it is different.

In the same way some of the harshest critics of the successful high school and college football coaches are those who are jealous of the success that these coaches have attained. It is not the purpose of this writer to suggest that some fortunes have not been created by questionable methods nor that some schools and colleges have not gone too far in their efforts to secure winning teams. Criticizing undesirable methods with a view toward improving business or athletic conditions is desirable. It is dangerous, however, to spread the doctrine that success in either business or athletics is undesirable.

## *Education*

THE majority of the leading men who are occupying positions of prominence in the nation's affairs are college and high school men. A list of those who may be considered as leaders or as occupying positions of influence in the nation would include members of Congress, department heads at Washington, governors of the various states, heads of the leading financial institutions of the country, college presidents, college professors, editors of the most important newspapers and magazines, economists, sociologists and scientists who occupy the front rank in their fields today.

From early times until recent years the scholastic or academic idea of education has bulked large in our educational system. This theory of education was very well defined by Dr. Pritchett in the Carnegie Bulletin No. 19. In his introduction to that Bulletin he pointed out that the early American college was considered solely as an intellectual agency, as differentiated from the college that is considered as a socializing agency.

While the social philosophy of education has gained ground in more modern times, yet the fact is that the majority of the nation's leaders received their education in institutions where scholarship was glorified; institutions that were considered primarily as intellectual agencies. Some of those at least who subscribe to the scholastic idea of education believe that education is an end unto itself, that the college should offer courses only which have no utilitarian value and that it is not the business of the college to concern itself with the health or character training of the students.

It is not the purpose of this writer to suggest that our former educational system is to be held responsible for the sorry condition in which we find ourselves today. It may be pertinent, however, to point out that our leaders, the majority of whom were educated in accordance with scholastic ideas and ideals, have not been able to direct the thought of the nation along right lines. Perhaps it would be more nearly correct to say the American people have not, as it has been demonstrated, learned to avoid crises such as the one through which we are passing or, having the knowledge, have not had force of character enough to do that which they knew was right and proper.

Today, when the social philosophy of education is gaining ground, this theory is attacked by those who were trained in the old school of education and who believe that it is not the function of education to teach business and commerce, journalism, finance, public speaking, religion, art, music, or athletics. Recently a college president was quoted in the papers as suggesting that athletics were not a part of education. As to whether or not this statement is accepted depends first upon one's understanding of the meaning of athletics and one's idea of the function of a college or the purpose of education. If we are to accept the point of view of the scholastics, then most assuredly athletics, home economics, courses in character training and all of these courses and departments that Mr. Flexner criticized in his book, *Universities—German*,

*English and American*, should be discontinued as educational activities.

If, on the other hand, we are to accept the National Education Association or the North Central Association objectives of education, then it is not difficult to understand how athletics and these other activities may fit into the educational process. The National Education Association, for instance, lists the following seven objectives of education: (1) *Health*. Teaching the science of living by and through physical education courses and activities may then be considered, if this objective is accepted, as a part of education. (2) *Citizenship*. One of the requirements of citizenship today is that a citizen should respect the rules of the game, should recognize the rights of others, should cooperate with his fellows, should face disaster courageously. These are all qualities that are stressed on the playing fields. (3) *Worthy use of leisure time*. In the United States Army the officers have been taught to devote part of their leisure time to sports and activities that are designed to conserve health and maintain physical efficiency. Very few civilians reach the age of retirement as strong, healthy and vigorous as do the Army officers who retire from active service. (4) *Worthy home membership*. (5) *Vocation*. (6) *Ethical character*. (7) *Command of fundamental processes*. Most assuredly a well conducted course in physical education and athletics might be expected to result in the attainment of some of these educational objectives.

Of course, there are some who will call attention to the fact that, even under the greatest athletic teacher who has for four years given the most careful consideration to the ethical character and health of those whom he instructs, it is impossible to prove that any individual student has acquired desirable character traits or attained any of the other educational objectives as listed by the N. E. A. By the same token it may be suggested that neither can it be demonstrated that if a boy studies Latin or geometry or history he is thereby a better citizen, has improved his health or his ethical character. At the same time, we believe that it is worth while that our children should go to high school and college, and at least those who have competed in athletics quite generally agree that it is worth while for a boy to compete in athletics under the direction of a capable and worthy coach.

One fault that is continually arising in connection with our thinking about this subject relates to the fact that some educators start with the premise that all athletic coaches are poor teachers who exert the wrong influence over those whom they teach, while all academic instructors are superior teachers whose influence for good in the class room can never be questioned. It would help some in arriving at an intelligent conclusion regarding this subject if we might agree that neither football nor chemistry nor books are moral. Each may be good or bad, depending upon how used. If a boy has had a close contact for three or four years with a great man, whether that man be a Sunday school teacher, a football coach, or an English instructor, the boy will have received something that will serve to help him in becoming a good citizen.

# Physical Education at Deerfield-Shields High School

By J. ALDRED PEEL  
DIRECTOR OF ATHLETICS

DEERFIELD-SHIELDS Township High School, Highland Park, Illinois, has two gymnasiums, one for boys and one for girls. An individual locker system is used in the department, and at the beginning of the school term each boy purchases a combination lock for use on the locker assigned to him.

The basketball court in the boys' gymnasium is so arranged that two basketball games may be played at the same time. The gymnasium is equipped with a running track that has proved valuable in training track athletes and for intramural competition.

In the basement just below the gymnasium is a large laundry room for washing school towels and uniforms used by our students.

The natatorium is sixty by twenty feet and is used by both boys and girls. The water is chlorinated, and recirculated through a filtration plant.

boys' track squad does most of its training on the cinder track which surrounds the field. The other field is a thirty-acre tract and has a well-developed quarter-mile running track with a 220-yard straightaway. The field has three practice football gridirons and a separate gridiron for scheduled games, two baseball diamonds, ten clay tennis courts and a large skating pond. The main football gridiron, the track and the entire thirty acres are surrounded by a high wire fence having six entrances. The entire length of one side of the field has been arranged for the parking of automobiles, and ample seating space has been provided for spectators. The field has an ideal drainage system and is kept in perfect condition by a caretaker who works on the field practically the year 'round. A large school bus is used to carry the boys to and from the field during the practice season.

The staff of the department of boys' physical education consists of Head of the Department, Intramural Director and Remedial Gymnastic Director. The work of the gymnasium classes is divided between these three men. Working in conjunction with this department are five other men who teach academic subjects and coach interscholastic athletics during the season.

The physical education program is divided into four major departments, and each department has its specific and ultimate objectives. The departments are health, physical development, intramural and interscholastic.

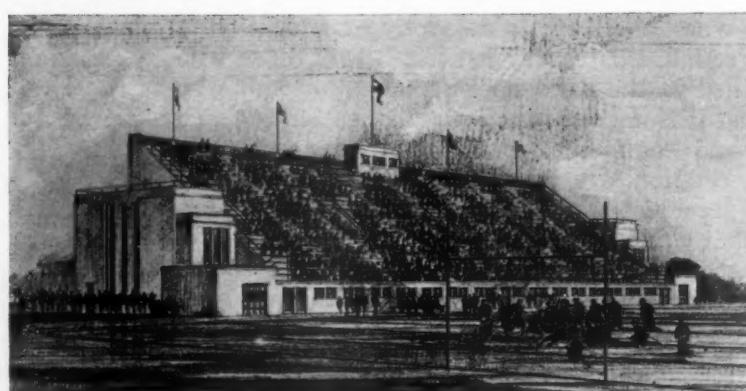
## Health Department

The health department co-operates at all times with the other departments. Working in this department are two nurses, who at times have high school girls to assist them. A physical examination is required of all students at the beginning of the school year and a record of this is kept permanently. Two doctors and assistants perform this work and the students are classified as "A", "B" or "C" students. Students classified as "A" may try for varsity teams. "B" students must take gym work and "C" students are required to take remedial gymnastics. A room has been fitted with cots in the department for students who require rest during the day. Instruction in hygiene is given in the regular gymnasium classes by the physical director. The health department carries on a continual campaign



The bottom of the pool is vacuum cleaned and the top flushed off daily. Thorough soap baths are required of students before they enter the pool, and any student with open sores, infections or colds is excused from swimming classes. The girls' entrance to the pool leads directly from the girls' showers, and the boys' entrance from the boys' showers.

Two athletic fields, one large and the other small, are maintained by the school. The smaller one is located near the school and the larger one is about one-half mile away. The field near the school is used mainly for girls' physical education classes, although during the fall and spring the



Deerfield-Shields High School new field house will be complete for every scholastic and athletic need. Classrooms, dressing rooms for boys and girls, gymnasium floor and stadium, have all been incorporated into the proposed structure.

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# TWENTY-THREE DRAKE

## Des Moines, Iowa

### Des Moines Welcomes You!

On behalf of the City of Des Moines, the Greater Des Moines Committee extends to the universities, colleges and high schools of America a welcome to the Drake Relays April 29-30. Iowa and Des Moines are proud of this outstanding athletic event of America and the world, and they will make every effort to have your stay here a happy and pleasant one. If we can be of any service to you, let us know.

THE GREATER DES MOINES  
COMMITTEE  
Coliseum Building



Henry Brocksmith of Indiana

Champions at the 1932 Drake Relays will be chosen in Los Angeles this summer. Founded twenty-three years ago, the Drake Relays are preeminent among all relay games in America. The 1932 Relays will be held in Des Moines April 29-30, under the direction of the Greater Des Moines Committee which has caused cancellation of the 1931 Relays. Drake officials have gone ahead and are preparing for the most successful games in history, according to the committee. Twenty-five hundred athletes from universities, colleges, and high schools will make up the competition. Records are expected to be broken in this crowning event of the year.

For further information, write to Director Ossie Drake, Drake University, Des Moines, Iowa.

### Events on the Drake Relay Program

SPECIAL EVENTS:  
100-Yard Dash, 120-Yard High Hurdles, Two-Mile Run, High Jump, Broad Jump, Hop-Step-and-Jump, Pole Vault, 16-lb. Shot Put, Discus Throw, Javelin Throw, Hammer Throw.

UNIVERSITY SECTION: 440-Yard Relay, 880-Yard Relay, One-Mile Relay, Two-Mile Relay, Four-Mile Relay, Distance Medley Relay, 480-Yard High Hurdle Shuttle Relay.

COLLEGE SECTION: 880-Yard Relay, One-Mile Relay, Two-Mile Relay, Sprint Medley Relay, 880-Yard and One-Mile Relay for colleges of the Iowa Collegiate Athletic Association.

HIGH SCHOOL SECTION: (Separate Relays for Class A and Class B Schools.) 440-Yard Relay, 880-Yard Relay, One-Mile Relay, Two-Mile Relay.

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information, write  
Mr Ossie Solem,  
Iowa State University

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### Make Your Reservations for the Relays Now!

Reservations for hotel accommodations during the Relays should be made at once to assure you the kind you desire. A convention city, Des Moines hotels are accustomed to handling large numbers of visitors and we will be able to furnish you the finest accommodations possible. It is well, however, to send in your reservations as early as possible. The Headquarters Chairman, Drake Relay Committee, will be pleased to make reservations for you and your team.

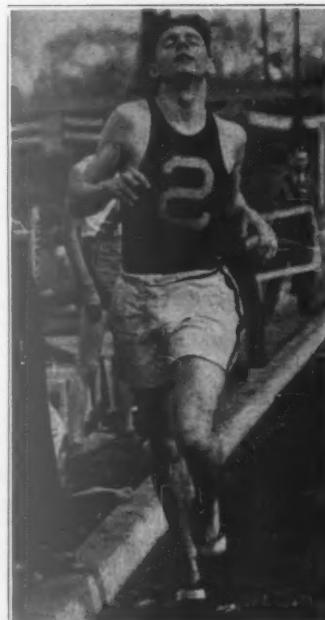
Railroads have granted special round trip rates of fare-and-one-half for the Drake Relays.

### City of Opportunity for Young Men

Des Moines is one of the fastest growing cities of America, an energetic and cultured community—a young man's city—a city of opportunity for the man of ability.

Capital of the wealthiest agricultural state, Des Moines has 400 factories employing 12,500 persons—135 jobbing houses—48 home insurance companies including 16 life insurance companies—and is fifth greatest publishing center of America.

*Learn about Des Moines!*



Clark Chamberlain of Michigan State

to cure and keep out ringworm of the feet, and is always active in first aid to the injured.

#### Physical Development Department

In the physical development department, the freshmen report for class three times each week, and the sophomores, juniors and seniors twice weekly. All classes are fifty-five minutes in length. The students are given eight minutes for dressing, two minutes are used for taking roll and the following twenty minutes are given over to formal work. The last fifteen minutes are used for games and ten minutes are given for taking a shower and getting dressed. Freshmen in all gymnasium classes do the same kind of work. During the fall and spring, classes are conducted outside on the playground. All freshmen must be able to swim at least one length of the pool at the end of the first year or enroll in swimming their sophomore year and continue until they can swim the required distance. The sophomores, juniors and seniors are permitted to register in the sport they like best and during class period these classes are given fundamentals and game technique in the chosen sport. However, during the winter months, the first fifteen minutes of the period are given over to formal floor work.

Remedial gymnastic work comes under the department of physical development and all boys classified as "C" by the physician must report twice weekly to the remedial gymnastic class until they are dismissed by the director, at which time they are returned to the regular gymnasium class.

An advanced gymnasium class, known in our school as the tumbling team, reports twice weekly for tumbling practice and gives exhibitions in assembly and at grammar schools, and each year it has given exhibitions at the Veterans' Hospital at Great Lakes, Illinois.

#### Intramural Department

The intramural department has been successful because of the close co-operation of the teachers of all departments of the school. Each teacher in charge of a session organizes a team and elects a captain in the sport chosen by the Intramural Director. The teams play a regular schedule of games. In this department we attempt to get every boy in school in some form of athletic sport and have found the competition and interest very keen. The standing of teams is posted after each game on a large bulletin board in the main hall.

#### Interscholastic Department

Deerfield-Shields is a member of the Chicago Suburban League. Other members are Oak Park, Morton, New Trier, Evanston and Proviso. We maintain representative teams and compete with other schools in football, basketball, baseball, swimming, track, golf and tennis. We also have a rifle and a boxing team.

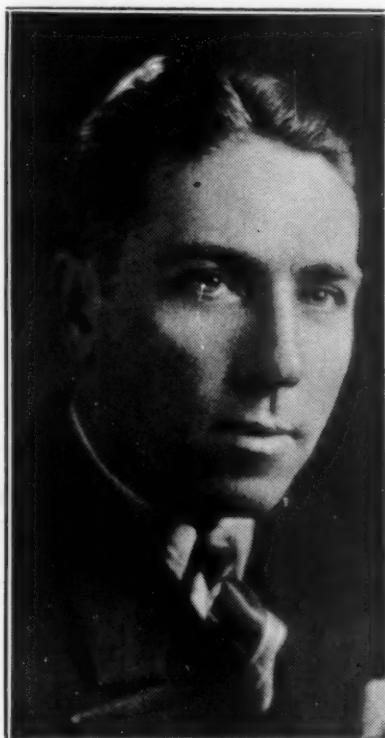
Any boy may come out for the team in all sports and none are cut from the squad. During the football season approximately 140 boys were equipped with complete football uniforms except shoes. The boys on the squad are required to keep eligible according to the Illinois state regulations, and we have a rule that they

must be doing passing work in at least three solids at the end of the semester before they are awarded a letter. Letters are awarded to boys in all sports on recommendation of the coach, Athletic Director and the Committee on Athletics. The letters are of two sizes. One is a major letter, which is slightly larger than the minor letter, and is given for major sports. The minor letter is given for minor sports. We adhere strictly to all rules for letter requirements and after a boy has met the requirement on the playing field he must also meet the requirements for conduct in the class room and on the school premises in order to get the letter. Cheer leaders' and managers' letters are so marked that they can be readily distinguished from team letters. Boys who have earned letters are permitted to wear the school sweater.

Team managers are elected according to seniority. There is one senior manager for each sport and several assistants who have definite assignments, such as looking after equipment, keeping records of quarters played, helping with publicity and running errands.

The league schedule is taken care of by the school representative. All other athletic events are scheduled by the Athletic Director. League officials are chosen by the representatives from all the schools in the league. The coach of each school recommends twenty-five officials to the representative, who meets with the other school representatives and selects officials for the season.

The sale of tickets is handled by the Athletic Committee, and all receipts are turned over to the Secretary of the school who keeps all accounts. Requisitions for equipment and all money expended are endorsed by the Athletic Director and the Chairman of the Athletic Committee.



J. ALDRED PEEL played football, basketball and baseball at Taylorville, Illinois, Township High School in 1912, 1913, 1914, and 1915. He was captain of all three sports for one year. After graduation, he attended the University of Illinois, and while playing quarterback on the freshman varsity squad twisted his knee. He has never fully recovered from this injury.

During the World War, he enlisted as an ambulance driver in June, 1917, and served overseas for nineteen months. After the War, he returned to the University of Illinois and graduated from the coaching school in 1923. He coached for one year at Batavia, Illinois, and for the last eight years has been Athletic Director and head coach of football and basketball at Deerfield-Shields.

Besides his work at the University of Illinois coaching school, Mr. Peel has had instruction from such coaches as Gilmour Dobie, Knute Rockne, "Pop" Warner, Dick Hanley and Burt Ingwersen.

#### High Jump Exercises for Teaching the Eastern or Western Form

(Continued from page 11)

air without the use of standards or a cross-bar.

The writer has changed the jumping form of many boys in the last ten years by the use of these three exercises. They have been found to be equally good for high school boys and college men.

Some statements may seem to conflict with the so-called "step-over" style which has been recently used to advantage by some of the California jumpers.

# THIS BALL

PLAYS YOUR TEAM  
NO DIRTY TRICKS..



Just a slight variation in your basketball's resiliency, an imperceptible shift in its shape can seriously upset the cleanest passing, the sweetest dribbling. Ordinary basketballs often develop these treacherous changes after a little play. That's why you owe it to your players to give them only the Reach AA Official Basketball . . .

For, this great basketball, throughout its long life, *can't* vary a bit from normal size, shape and "bounce". That's because the AA Ball has the

*Reach Double Lining*—and this special lining holds the ball to strictly official requirements, to perfect playing accuracy just as long as it is played! No bulges—no dead spots can trick your team!

No other ball made can give you such long, accurate playing service as the Reach AA Ball. No other ball has such fine quality built into it. Your nearest dealer will gladly show you this ball—as well as many other features of the new Reach Basketball Line.

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## REACH BASKETBALLS

# Why Spring Football?

By STUART BALLER  
HEAD COACH, LINCOLN, NEBRASKA, HIGH SCHOOL

**A**S the basketball season begins to wane and the interest in other sports is in the decline, we begin to plan our spring program. At once we hear the discussion whether we should or should not have spring football. The question in the football world arises in regard to its value. Some coaches argue that the incentive for the players to work is not there, and, therefore, little value is derived from spring practice. Others argue that only a few participate, and because of other sports at this time of year, they see no reason for spending two or more weeks at a seemingly valueless task. Still others, realizing that their neighboring schools are having it, carry it on in order to maintain a "social" prestige. On the other hand, some schools declare it unnecessary and renounce it to the extent that it is abolished entirely.

To me, the answer to this problem depends entirely upon the aim of the coach and school. If spring football is for the purpose of developing an organized team which will spend considerable time in scrimmaging, a high school is not justified in having it. Neither is it justified in having it if the coach must spend his time with a varied group of uninterested boys merely because spring football is supposed to be in existence. However, I maintain that this sport for this time of year has a most definite part in the athletic program of a school of any size.

There are three basic reasons for having spring football. First, the coach has a chance to inspect new material. Second, the incoming players have a chance to become better acquainted with the coach and, third, the basic skills in the fundamentals of football are developed with two thoughts in mind. First, the fundamentals are to be used as more efficient weapons when the boy makes the team. Second, the boy who does not make the team will have a deeper appreciation of the game itself by actual contact with these fundamentals.

Now the question arises, "How are these three objectives to be realized?"

The first and second basic reasons for having spring football will be taken care of by the natural contact between players and coach, but the third reason, namely, the development of skills in fundamentals, cannot be disposed of so easily. If, in this, the

coach is successful, he must spend a great amount of time in minute and detailed organization. There are certain positive facts he must have in mind. First, the squad must be interested in its work. Second, the boys must know that they are accomplishing something while in suit. Third, the coach must set a standard so that he may be able to inform these boys to what extent they have reached the goal set up by him. Fourth, an exact number of practices must be set and an announcement be made to that effect. Fifth, he and his assistant must know definitely what they are to do during each practice. Sixth, the spring practices must have a definite bearing upon the personnel of the squad in the fall.

Imagine yourself the coach of a high school where approximately 150 boys are reporting for spring practice. These boys are from groups of all extremes and types. They include lettermen who are to return, reserve lettermen, players from the league teams of the school, boys who have moved in from other schools, along with those who have never played football.

The first afternoon of spring practice you step out on the field and you notice with many and various emotions the activities of these boys. Some are punting the ball; others receiving it. Some are partly organized in a passing drill, while many are merely standing around trying to feel "at home" in their suits. Your great problem now is handling this group so that each boy will receive his share of instruction without loss of time or energy. The best answer to this is through the use of senior lettermen as instructors.

You want to make these selections mean something, and the appointment of senior coaches to be felt an honor; so you choose one guard, one tackle, one end and two backfield boys for coaches. Their names are published, and the boys are accepted in the coaches' dressing room as a part of the staff. The reason for picking the boys from varied positions from the previous team is not that you emphasize one boy as guard coach, another as end coach, etc., but that one finds the aspirants for guard position asking many and varied questions in regard to that position, the tackle candidates questioning about the tackle positions and the backs desirous of

learning the finer points of the backfield play.

Boys naturally locate the coach who has played that position, and their problems are ably answered. These coaches are consulted every afternoon before practice begins, the work is planned and each reviews a schedule of practice procedure.

The first three weeks of work is group work, each group being assigned the same fundamentals. For example: When the time comes for tackling practice, the entire squad is called in at the sound of the whistle, each player coming on the run and urged on by his student coach. The boys sit down at a designated spot on the ground and the group instruction begins. The student coaches act as demonstrators and the following is an example of what one might hear if he were standing by:

"With the head-on tackle, there are certain fundamentals that you must always remember. First, head up, back down, eyes on the spot that you are to tackle; strike like a snake catching a bird, clamping with the hands and snapping with the back. John and Bill will demonstrate. Walk through it first, and everyone take careful notice of the points emphasized."

Immediately, these boys walk through the demonstration; later they speed up their actions. At no time is the tackler more than three or four yards from the person tackled. After this is repeated several times, and the coach has answered all the problems that seemingly arise, he counts the boys off by 1's and 2's and arranges them in two long lines, the 1's tackling the 2's, and the 2's tackling the 1's, the assistant coaches watching and correcting faults. All the tackling is done at the same time, from your own command.

Most all of the fundamentals are carried on in this fashion, with the exception of the passing, kicking, side-stepping and pivoting. These are placed in the hands of coaches especially designated for this work.

The last week of practice is spent entirely in competition on the fundamentals learned. With the student coaches acting as judges, all fundamentals are gone through in process of elimination. Take for your example, again, tackling. The first round, you would have seventy-five pairs of

# A PAIR OF ACES!



to  
star  
in the  
1932  
baseball  
season

## **Gold Smith** No. 97 Official League Ball

We believe the No. 97 to be the best Baseball that can possibly be made. It is built from core to cover to give SERVICE. Pure para rubber center—woolen yarn wound under constant tension—strong finishing twine—alum tanned horsehide covers of uniform thickness—strong waxed thread, all make a ball that will stand up and give service.

RETAIL ..... EACH \$1.75

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WRITE FOR ADOPTION CONTRACTS



A new and distinctive type of Fielder's Glove which is already winning tremendous PLAYERS' APPROVAL. The patented lacing device in the back allows all the fingers and the ball pocket to be adjusted to suit the individual player. This is a full sized professional model—oiled horsehide—full leather lined—welted and diverted finger seams—leather binding—leather laced wrist—open style back.

RETAIL ..... EACH \$7.50

### CATALOGS—

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# SUMMER SCHOOL of Education

June 27 to  
July 29, 1932

International Y. M. C. A.  
College  
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#### Physical Education Practice

Apparatus; calisthenics; dances; drills and exhibitions; mass games; swimming; tumbling; etc.

#### Physical Education Theory

Achievement tests; anatomy; corrective gymnastics; hygiene, personal physiology; theories and techniques of teaching; treatment of athletic injuries, etc.

#### General Education

English composition; French; history of modern Europe; hygiene, mental; principles of secondary education; psychology of adolescence; psychology of education; public school administration; sociology; supervision in education; types of literature.

#### Graduate Courses

Animal mechanics and kinesiology; learning processes; organization and administration of physical education; physical education seminar; physiological problems in training; psychology of physical education.

#### Character Education and Human Relations

Character education; heredity, eugenics, evolution; personal and vocational guidance; social ethics.

For particulars, address

G. B. Affleck, Director

boys. Four boys are in the competitive ring at the same time, and at the word "Hep," two of these boys tackle their mates. After this has been done three times, the judges eliminate two, and so on. The tackling fundamentals take, approximately, three evenings to get to the finals. And in this elimination, you actually find the players who are willing to give and take: boys who are made of the kind of material that makes a team a success. May it not be said that these boys "hit" easily; especially from the quarter finals.

At the same time this fundamental is going on, you see other competition in progress: various blocks, distant and placement punting, passing and receiving, falling on the ball, pivoting

and side-stepping, the combination place-kicking and drop-kicking of your defensive moves, namely, "double coordination," "submarine," "over-the-top," and "blow and step."

All finals in these contests are held the same afternoon and spectators are allowed to view the proceedings. Immediately following this, you announce the thirty-five boys who are to report for first team practice in the fall, and also the thirty boys who have been selected for the reserve squad. The players are then dismissed, realizing that they are better equipped with the weapons necessary to play the sport of all sports. The coach is satisfied that he will not have the race against time in his preparation for the opening game in the fall.

## Financing the High School Athletic Department

(Continued from page 15)

taken from the activity ticket fund to bring each athletic account to a balance after all other receipts and all expenditures have been determined. In this way, our athletics certainly may be called self-supporting, for rarely do they require the mythical percentage of the student activity ticket fund which is theirs to balance accounts.

The amount remaining in the activity ticket fund after deduction for athletics is applied to semi-self-supporting and entirely dependent organizations such as orchestra, debate, band, big sister party, etc. This amount last year was \$563.84, of which only \$375.38 were actually needed; the remainder, \$188.46, remaining in the fund for this year.

Buying is done by the Athletic Director (coach) in collaboration with the Principal. No one company is favored, goods being bought with three considerations in mind: need, quality and price—the best quality for the lowest price to fit our needs. Frequently, as in the case of track shoes this year, we buy two types and determine, for future use, which is best. For example, this year we have what we believe an adequate cheap shoe from one company and a higher priced shoe from another company which believes it will outwear the first, two to one. Should the second prove better than the first to any great extent, next year we can benefit from this experience and, for a difference of fifty cents, can get about double the service, thus effecting a real economy.

In addition to equipment and the usual expenses incidental to successful maintenance of athletics, we have a situation not often found. The high school has no football playing field or adequate basketball and track facilities. All we have is a small gymnasium and a practice field. Cape Girardeau is, however, a college town and we make use of the college stadium for football and track, and of its field house for basketball. (This applies only to actual meets and games, with occasional practices.) One-third of our gate receipts and one-third of the activity admissions go to pay for the privilege of using these college facilities. When we look over the figures shown giving the amount of such expenditure, it will readily be seen why, at the present time, it is well to keep to our method of caring for athletic department finances.

Paid the college for use of stadium and field house, 1930-31:

Football .....	\$409.83
Basketball .....	153.00
Track (only two meets held; both sponsored by someone else) .....	0.00

\$562.83

This year, including only football and basketball, we have already paid nearly a thousand dollars. With track coming, we will pay still more.

Next year we hope to try out a plan whereby most of our contests will be held on Saturday. Heretofore most of them have taken place on Friday. Because we use college facilities, our

# A Brand New Spalding Idea *that outlaws head injuries!*



SPALDING has introduced every important new feature that has appeared in headguards in the past ten years. And now, in the RJ, Spalding produces a brand new idea that will let you say good-bye to head injuries for once and for all!

The RJ is constructed with a stiff crown, stiff molded ear pieces and back. *The headband is set half an inch inside the crown, front, back and sides of the headguard.* There is always a space between the guard and the head, even upon impact. No blow, regardless of how hard, ever reaches the head!

In addition, this construction allows air to pass up into the guard, keeping the head cool. The RJ refuses to be

pulled down over a player's eyes. The headband holds it in place at all times and under all conditions.

When you see the RJ and other Spalding headguards you'll know why more good teams wear Spalding headgear than all other makes put together. Send for the Spalding Football Catalog. It will be a great help to you in outfitting your team no matter how many mean tricks the depression may have played on your budget. A. G. Spalding & Bros., 105 Nassau Street, New York City.

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# University of Southern California

## Summer Session 1932

Department of Physical Education Summer Faculty includes

Eugene Matthias, Ph. D.  
Carl Diem, M.D.  
Alfred David Browne, M. D.  
Frederic A. Woll, Ph. D.  
Jessmin Howerth  
Michio Ito  
T. A. D. Jones, B. S.  
Charles Leroy Lowman, M.D.  
Lyba Sheffield Mackie  
Martin H. Trieb, A.B.  
Glenn Warner, LL.B.  
Jesse Feiring Williams, M.D.  
William Ralph LaPorte,  
A.M.  
Germaine G. Guiot, B.S.  
Eugene L. Roberts, A.B.  
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Harry Wright Anderson

A copy of the 1932 Summer Sessions Bulletin containing descriptions of courses, schedule of hours, etc., will be mailed on request. Address, Dean of the Summer Session, University of Southern California, 3551 University Ave., Los Angeles.

First Term—June 17 to July 29  
6 units

Second Term—July 29 to  
September 2  
6 units

Olympic Games—July 30 to  
August 14

football schedule cannot be made out until that of the college has been completed. In basketball the situation is worse. There we have to wait to complete our schedule until both the college and the prep school connected with it have completed theirs. That these conditions have an adverse effect on gate receipts, we firmly believe, and are, therefore, hoping for better results next year by using the Saturday plan, at least in football. In a town which supports two and three teams, it is difficult to keep interest centered on one sufficiently to enhance gate receipt reports and we strive, for that reason, to try every plausible and feasible plan to center interest on Central.

We have a plan, as yet nebulous, for building our own stadium and field house. If we borrow the money necessary to do so, this system of financing the department can go on with amounts which went to the college going toward payment of our own facilities. Then, when all is paid for and athletic gate receipts become adequate to carry the load, a general athletic fund may be created, with budgeting of various sports, leaving surplus amounts to care for activities in new fields of athletic endeavor.

### *A Workable Financial System*

By BOB WADDELL

ATHLETIC DIRECTOR, PITMAN HIGH SCHOOL, PITMAN, NEW JERSEY

PITMAN is a town of approximately 6,000 people. In the school we have about 450 boys and girls. Athletics have more than paid for themselves and we believe that the caliber of the teams had something to do with it. We charge the following prices: football 35 cents, basketball and baseball 25 cents, girls' hockey 15 cents, girls' swimming and boys' field and track are free.

We have a General Association which is composed of the entire student body. The General Association Committee is composed of the Principal of the school, coaches and class representatives. The freshmen and sophomore classes each have one representative, and the junior and senior classes each have two representatives. We also have one member of the faculty who is the Treasurer.

The first school day in September the students are requested to pay \$3.00 each, which includes their class dues, fee for the school magazine and admission to all athletic contests played at home. This brings in at least \$1,000 the first school day in

September. We run a drive which is carried over the summer by the students themselves and is conducted as follows: In June, each class has a committee of three or four, which includes the president of the class, and it is up to the committee of each class to collect the dues over the summer from the members of their classes. Last year we had three classes which turned in 100 per cent "paid up" students. This money is due before school opens the first day of September and the class having 100 per cent is given a G.A. banner to hang over the class banner.

In football the officials cost us \$15 apiece on Saturday and \$10 on Friday. We try to play most of our games on Saturday, as more people come out to see the game on this day. We take in anywhere from \$75 to \$400 a game and we do not pay guarantees to visiting teams as we play on a home and home basis; so our only expense of the games is for the officials. In basketball, we pay \$10 for one official and take in anywhere from \$20 to \$50 a game. In baseball we pay one umpire \$3 and one umpire \$5. The gate receipts very seldom, if ever, cover the expenses in baseball.

The outstanding expense for the season is the buses, which average about \$15 a trip. We allow all our students in free, which naturally cuts down our gate receipts. All our fields are open but next year, starting with football, our athletic fields will be enclosed, thus making the gate receipts larger. The Principal of the school, the Manager and some students sell the tickets at our games. All the finances are turned over to the Central Treasurer who pays all the bills. The buying is done by the Athletic Director after being voted upon in the General Association meetings and when an order from the Treasurer is given.

The Board of Education has in the past helped out by buying some of the equipment for the various teams and paying the expenses for traveling. This year we paid all traveling expenses ourselves, and starting next year we expect to buy the equipment ourselves. We generally have left over at the end of the year a balance of \$500 which, with the budget drive ending the first day of school, gives us at least \$1,500 to start the year on.

We sponsor eight sports for boys and girls and, where some sports, like baseball and track, do not pay for themselves, we make enough in our other events to more than equalize the loss in these sports. This system is workable and takes some time to build up, but after installed, I believe, it

will be the best system. At least I haven't found any that is any better for problems in the Athletic Department.

### *Financial Problems of a Parochial School*

By MICHAEL M. LAKE

ATHLETIC DIRECTOR, IMMACULATE CONCEPTION HIGH SCHOOL, TRENTON, NEW JERSEY

UNSUBSIDIZED by the taxpayers, as are the public schools, the parochial high school naturally finds itself confronted with a greater task in dealing with the financial angle of interscholastic sports. Particularly is the problem exacting to the coach of a school with less than four hundred enrollment and located in a city which supports another school of a similar type.

Just as in most other parochial schools, the burden in our case falls upon the students themselves and the adult supporters of the teams, but the latter source has always proved uncertain and unpopular with the result that little aid is expected from this direction. Hence, the students themselves bear almost the entire burden.

Basketball is our major sport and our only source of revenue. All receipts collected at home contests are deposited to the credit of the Athletic Association and upon these receipts depend, almost entirely, the activity of the basketball, baseball, track, soccer and tennis teams; comprising the entire athletic program of our school.

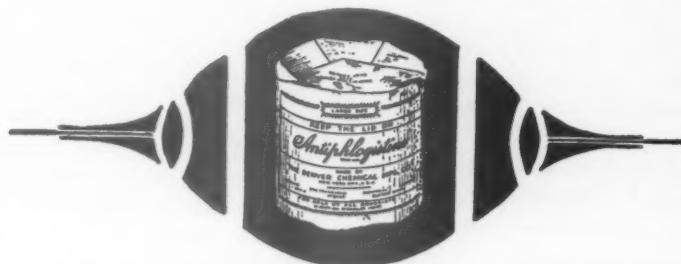
The start of each school year generally finds the athletic money chest empty. The first move towards retrenchment is taken by the Monogram Club, composed of past and present letter winners. These boys annually conduct a school dance which usually brings in about \$150.00. This is the foundation of the fund which makes possible the sport program.

Ten home games in basketball are played, and the income from these averages \$50, for a total of \$500.00. This is also deposited to the credit of the Athletic Association and, with the money brought in by the dance, brings the fund to approximately \$650.00. This money never actually accumulates to such a lump sum. The dollars get very little opportunity to become acquainted, for each deposit is matched by an expense withdrawal as the season goes on.

Basketball takes advantage of its position as an earner by being the most extravagant sport. A schedule of twenty games generally consumes \$345.00 distributed in cost of uni-

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STRAIN of Muscle that often follows violent exercise—especially if the muscle be unaccustomed to such exercise—and usually characterized by generalized or localized tenderness to pressure over the muscle, is readily amenable to prompt treatment.



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Director

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BASKETBALL — Paul Hinkle (Chicago), Coach,  
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Tuition, Room, Board, Recreation Facilities, \$77. No extras. Another member of family occupying same room, \$38.50. Coaching Course alone, \$30.

For further information, write

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Mineral Wells, Texas

forms, bus hire, officials' fees and equipment.

Ten uniforms, including jersey, pants, socks, stockings, knee pads, sweatcoat and sweatpants, cost \$150.00. Bus hire, for six games away from home which call for a long trip, adds \$125.00 more to the expenses. Three basketballs cost \$45.00, and the officials' fees call for another \$100.00. This outlay totals \$420.00 but is reduced to \$345.00 through fare collections from fans who accompany the team on the games away from home. This helpful little contribution usually amounts to \$12.00 a game or about \$75.00 for the six games. There is room for about twelve fans on the bus which carries the team to the games away from home, and these fans are charged a standard fare of \$1.00, regardless of distance.

Baseball is the next heaviest spender, demanding \$361.00. No admission is charged to home games; consequently the sport is conducted at a total financial loss. Cost of fifteen uniforms totals \$150.00 and other items, such as baseballs, bats, umpire fees and rental of playing field, add \$210.00 to the expense list.

A sixteen game schedule is played in baseball with eight of these at home. These home games require three dozen baseballs, costing \$45.00; two dozen bats, \$36.00; umpire fees of \$40.00; rental of home field, \$40.00; and \$50.00 for the single game away which requires a bus trip.

All the other trips are made in private cars contributed by supporters, thus cutting down the expense considerably. This possibility is closed to the school's financial expert during the basketball season because of unfavorable weather encountered during the winter months.

Most of the funds are thus distributed for the conducting of our two major sports. The school is not represented by a football team. Activity in track is limited to two major meets, and an entrance fee of \$30.00 usually constitutes the total expense, as the contestants are generally boys who are also on the basketball squad and these use their basketball uniforms for running.

Soccer calls for an outlay of only \$14.00, although six games are played, three at home and three away. Transportation fare is again saved through the private car system, and the only expense lies in the cost of two balls at \$5.00 each and \$9.00 for officials' fees at the three home games.

The cost of uniforms, always a heavy item, is eliminated through the simple expedient of the basketball pants and borrowing a set of jerseys

from one of the many independent teams which abound in this city. A six game schedule is thus played at the small outlay of only \$14.00.

Tennis is even more lenient with the athletic treasury. Not a penny is expended to carry on a schedule of eight matches. There is no expense attached to the home matches and those away are always listed with teams which also have dates with the baseball team. Thus, when the baseball team travels to its games away from home, the tennis team accompanies it. Cost of racquets and balls is borne by the players themselves.

At the end of the athletic season the student manager, who aids the coach in keeping a check on the funds by keeping a ledger, brings in the report. This is usually disconcerting information, for it generally reveals that the expenses have far exceeded the income.

The five sports consume \$750.00; the revenue totals only \$650.00. A debit of \$100.00 therefore usually faces the Director, and again the student body comes to the rescue with the second Monogram Club dance, winding up the season's activities. This brings in about \$150.00 or more and after paying off existing debts, enough usually remains to purchase monograms for the varsity members of the various teams.

The season is thus concluded with a clean financial slate. When the following year begins the entire process is again followed.

## *Athletic Finance in a School of One Hundred Students*

By RAY H. WHITE

DOLAND HIGH SCHOOL, DOLAND,  
SOUTH DAKOTA

FINANCING athletics in high schools is a subject of great concern to the taxpayer and to all school officials; and more especially has it become a problem in these days of depression. Some schools have liberal school boards which allow funds for the maintenance of athletics, while others are less fortunate and find it necessary to cause their athletic program to be self-supporting. Although it is agreed that athletics are worthy of financial consideration from school boards, I feel that it is more desirable to have them perpetuated, to a great extent, financially unassisted. The latter situation eliminates the prevailing criticism of high school athletics. I have coached in the same school for the past five years—a community of 556 population, with 105 in high school, and with 65 per cent tuition, or

out of town, students. During this period of service, I have had much satisfaction from the fact that our athletic program is self-supporting. As this circumstance seems to be extraordinary, I feel that our financial program is a success.

The first thing that any coach should do is to build up the confidence and backing of his community, and in order to do so he will find the following very essential: to have winning teams, to mix with the public, to consider, outwardly, the contributions of the "downtown quarterbacks," and to see that his teams and town are properly advertised.

The ability to foresee the possibilities of a future season team is essential, as this knowledge will assist in arranging a schedule. The schedule for a season is as important as any other factor from the standpoint of both finance and success of teams.

We schedule early season games with the larger towns and conferences for out-of-town games which net us a profit. An example of this is a night football game which we played at a city a distance of forty miles, with a \$65.00 guarantee which netted us \$40.00 profit. This included \$12.50 transportation. We traveled via truck equipped for twenty men. The remaining portion of the expense was for meals and tape. We have a traditional Armistice Day football game, from which we have never realized less than \$150 in excess of our expenses, played at home every other year.

In making our schedule we make it a point never to guarantee an incoming team in excess of an estimated income of that contest. In estimating the gate receipts we consider the strength of the team, the day of the week, the time of the year and the school rivalry. Our income is derived from football and basketball, with an average of \$50 a game. Track is financed with the excess funds of the other two sports. We realize some receipts from interclass boxing, wrestling, tumbling exhibitions and class basketball. The season is not budgeted, but each game is budgeted to a certain extent. Our admission charge is 35 cents for adults, 25 cents for high school students and 15 cents for grade pupils. We are careful and considerate in selecting our officials, both from the standpoint of efficiency and the fees charged by them.

Individual awards, purchased by the lettermen's organization from money raised through outside activities, i.e. dances, plays and box socials, are presented to those eligible. One letter only is awarded to each athlete in each sport. Upon graduation the athlete is awarded a service record in

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the form of an especially designed booklet which includes space for coach's comments, photographs, clippings and a certification of his service awards signed by the coach and Principal, or Faculty Manager.

The equipment is cared for and issued by student managers who are responsible for its condition. Their duties are to see that balls are inflated and deflated daily; to care for socks, jerseys and helmets used only in games and for equipment used for practice; to tape wrists, ankles, thigh and shoulder pads, all of which decrease injuries and medical bills paid by the school. The transportation is furnished at 15 cents a mile one way per car, paid out of the athletic fund. The finance committee consists of two members of the School Board, the Principal and the coach. High school instructors sell tickets and take tickets. The buying is done by the coach, with the sanction of the Faculty Manager. All funds are not budgeted, as necessity governs all expenditures, and funds are proportioned to equipment and travel as necessity demands.

In this review I have presented a general statement of our plan. We have tried to stress the importance of a well balanced organization, based on conservatism and co-operation. However, I believe that every high school will have to work out an athletic program that can be adjusted to the needs of the particular community. While our program is not ideal, it has solved our problems and fits the needs of our school and our locality.

## Athletic Finance in a Farming-Mining Community

By LOUIS F. BOTTINO  
REED-CUSTER HIGH SCHOOL,  
BRAIDWOOD, ILLINOIS

**R**EED-CUSTER Township High School at Braidwood, Illinois, has an enrollment of 95 students. The community may be classed as being in a farming and mining locality. There are two towns in the combined school districts. They total 1450 in population. The farm area is not rich agricultural land, but farming is notwithstanding the main source of support for the schools.

The Athletic Department is financed through its gate receipts with the agreement that any deficit incurred be made up from the general fund of school tax money.

Under the present program three interscholastic sports are being sponsored: in the fall, baseball and cross-

country; in the winter, basketball; and in the spring, baseball. Home and home baseball games are scheduled in both spring and fall with fourteen to sixteen contests scheduled for the year. The team members provide their own uniforms, but all other equipment, such as balls, bats and catching equipment, is furnished. The amount collected at games is negligible, approximating \$15.00 for the year. The balance in cost is about \$50.00 which is made up from the basketball receipts.

Means of travel for all sports has been supplied free of charge by team members and interested fans. Even during this period of economic stress this important item of contribution has shown no sign of letting up. We attribute this to the evident good will existing between the school and community.

In basketball the schedule includes from eighteen to twenty-two games, exclusive of tournaments. Of the twenty-two played last year (1930-1931), twelve were played at home. Ten of the teams were scheduled for home and home contests. Two were given \$15.00 expense money for playing only on our court. The charge of admission for these games is fifteen and twenty-five cents with an additional ten cent charge for reserve seats. The total receipts for the 1930-31 season amounted to \$1,000.92. Total expenditures for the year were \$686.44. Of these expenditures \$225 were for new equipment such as uniforms and basketballs; \$175 furnished additional gymnasium equipment, part of which is used in physical education work; \$25 were spent on injuries incurred during practice or contests. The remaining \$261.44 went for food, expense of a banquet; and \$30.00 to the teams which were not played return games. Receipts and expenditures for the current year are due to be about the same.

In the scheduling of all home games an attempt is made to offer some unusual local talent as an added attraction whenever a poor drawing team plays. Keeping the interest of all groups and classes of townspeople has proved to be worth while.

With less than fifty boys enrolled we find that practically the same group is competing in baseball and basketball. For this reason we have turned to cross-country as a means of expression for those who are not playing baseball in the fall. No cuts are made from the squad. Two cross-country meets serve as a stimulus for those boys who would otherwise be entirely barred from interscholastic athletic competition. All boys must

attend gymnasium classes who are not on school athletic squads which practice daily.

The finances as well as other athletic affairs are in the hands of an Athletic Committee composed of two Board members and the Principal-Coach. Undoubtedly this double duty of Principal-Coach places responsibility for financing in the hands of some one who is much concerned about this item, as it is more or less a reflection upon his work. This does not hold where the finances are in the hands of the principal or superintendent and the athletic activities alone are left to the coach. Buying is done entirely by the Principal-Coach, as long as there are funds available in the athletic treasury. All proposed expenditures of large denominations are referred to Committee members for approval. The funds are not budgeted. Expenditures are made as deemed necessary.

The author has found that the confidence of the Board and community regarding use of school funds is a worth while objective. The following, in the way of management, have been worked out with this idea in view:

1. An itemized report of receipts and expenditures is presented at the Board's monthly meeting. This report bears the O.K. of the Committee which has been given the opportunity to review all bills presented to the department during the month.

2. Department records are open to the public.

3. Gate receipts are collected by Board members and teachers.

### *Finances in a High School of Less Than One Hundred*

By M. I. MILLER

COACH, ATHENA HIGH SCHOOL,  
ATHENA, OREGON

I WISH to present the plan that we have used here for the last four years. I do not say that it is the best, nor do I say that it will function in all schools.

Our school is located in the heart of a wheat section in the small town of Athena, Oregon, which has a population of 511 inhabitants. Our school enrollment is approximately sixty students, many of whom live in the country. We compete against schools of ten times our enrollment but not always successfully, especially in football.

All our school activities are financed by school plays, programs, sports and student body tickets, with all the receipts going into one fund known as the Athena High School Fund. Each student in high school is assessed \$1.00 each semester or \$2.00 for the school year. This admits them to all

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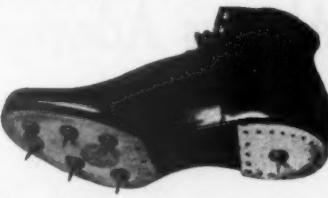
KX—Blue back Kangaroo cross country with  $\frac{1}{4}$ " spikes and cushion heel. School price, \$6.00.  
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NZ—Blue back Kangaroo special running broad jump shoe. School price, \$5.50.  
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school parties, sports, etc., which are given by the school.

Our school carries four sports; namely, football, both boys' and girls' basketball, baseball and track. Also, we have a band and a glee club which are financed by the school. Track is financially a dead issue, as the schools in this section do not charge admission for their meets. An admission charge of 35 cents is charged for all other sports and plays. Each spring we publish an annual, our school publication, which contains a summary of the year's activities, including pictures of classes, individuals, sports and plays. This is partially financed by advertisements given by the business men in and out of town.

Our school finances are handled mainly through the Principal of the school. Each year the students elect officers for the year. The Secretary-Treasurer issues all the checks, which must be signed by the Principal before they are good. Also, the Secretary-Treasurer has charge of collecting admissions at all contests and programs, appoints helpers, collects student body dues and keeps a record of all transactions.

Our funds are not budgeted, but it is understood that one activity cannot drain the treasury. Only the absolute essentials are secured for each sport, play or activity. When any large amount of equipment is desired or needed, the head of that department makes out a list and presents it for the approval of the student body. With the students' approval, the Principal will then grant permission to order the goods or do so himself with the coach's aid. Any small articles that can be secured locally are bought through requisitions, and blanks are made out by the Secretary-Treasurer and then signed by the Principal. This checks the small bills, as each requisition blank must accompany the bill when presented for payment.

When we schedule games, we try to make it a home and home game with each team taking its respective gate receipts, and each one paying its own expenses. When one game is played, a small guarantee is granted to the traveling team to cover expenses. We give each driver of a car which carries the players to and from games gas and oil to cover the distance traveled. This very seldom amounts to more than four gallons per car. We find that the fans, parents and students are more than willing to carry players on these terms.

In the figures which I will present later, it will be seen that I have listed all the expenses and incomes of sports, student body dues, miscellaneous accounts and others. The accounts are

all listed under each sport as they appear here with the incomes, including all gate receipts and guarantees. The expenses in basketball and football include doctors' bills, transportation, equipment, etc. Under miscellaneous accounts, the incomes are from plays and all other similar activities. The expenses under miscellaneous include the financing of all school parties, picnics, flowers for the ill who are out of school for more than one week, Christmas candies, equipment for the band and glee club and all other similar incidentals.

The school annual, as I stated previously, is not financed entirely by the school but by business men of the surrounding community through advertisements. The baseball expenses include track, which is gaining as a popular sport in our community. Our expenses for these two sports do not amount to so much as either of the other sports.

In all sports we furnish all equipment except shoes and baseball mitts. We do not furnish these as most of the boys would rather have their own, so that they may use them out of school. We use our basketball suits for our track suits. Also, our football jerseys come into use during baseball season. All our practice in all sports is done in old suits with sweatshirts as jerseys. I find that it is cheaper to buy them and use them this way than to buy jerseys.

Following is a copy showing the different sources of income and expenses:

<i>Sport</i>	<i>Expenses</i>	<i>Income</i>
Previous year's bal.		\$ 60.73
Football .....	\$111.13	172.00
Basketball .....	93.93	193.50
Baseball and Track..	87.55	93.25
Miscellaneous .....	167.46	143.10
Student Dues .....		125.00
Referees .....	49.00	
School Annual .....	160.00	
		\$669.07
Balance .....		\$787.68
		118.61
		\$787.68

This is a report of last year's activities. This year we cut the student body dues to \$1.00 for the school term and the admission to all contests and plays to 25 cents. To date we have a balance of \$69.72 to our account.

### **Building a Surplus**

*By DON CARTER*

COACH, PENDLETON HIGH SCHOOL,  
PENDLETON, INDIANA

PENDLETON HIGH SCHOOL is situated in a town of about 1500 people and draws its students from the town and the surrounding town-

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ship. The enrollment for the upper six grades will total about 375. The school is equipped with a fair gymnasium seating about 800 fans, a track, a baseball field and two tennis courts. The grounds, gymnasium and track have been provided by the School Board, while the baseball field and tennis courts have been built by the Athletic Department. Each year we play a basketball and baseball schedule and last year started golf as an interscholastic sport. The tennis is confined entirely to intramural contests.

The Athletic Department is financed entirely by receipts from basketball games. Adult season tickets are sold for \$3.00; student tickets are sold for \$2.00; single admission tickets sell for 35 cents to adults, 25 cents to high school students, and 15 cents to grade students. The following report has been selected as one of an average year and will give the readers an idea of the success of our plan.

#### RECEIPTS

Season tickets .....	\$ 212.00
Admissions at games .....	753.60
Received from other schools.....	186.90
Sale of old balls.....	18.00
Receipts of sectional tourney .....	317.83
Interest on time deposits .....	62.23
Miscellaneous receipts .....	26.81

Total receipts ..... \$1,577.37

#### EXPENDITURES

Paid visiting teams.....	\$ 180.00
Officials .....	194.00
Meals .....	86.75
Equipment .....	312.71
Transportation .....	193.00
Advertising and postage....	61.00
Awards .....	110.00
Medical aid .....	23.00
Paid on score board.....	150.75
Miscellaneous .....	30.20

Total expenses ..... \$1,342.02  
Balance in bank..... 235.35

Total ..... \$1,577.37

One of the main factors in the success of our plan is the business-like organization of our Athletic Department. We have an Athletic Board made up of four members; the Superintendent, Principal, Coach and one other member of the faculty who acts as Treasurer. This Board holds occasional meetings to discuss matters relative to the department. The buying of the usual and necessary equipment is taken care of by the coach and the bills paid by the Treasurer, while anything like new uniforms, score boards, awards, etc., are purchased only after due action of the board. The coach keeps an inventory of the equipment in the Athletic Department, the same as do all other departments

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All track and field events are included in the Special Olympic Stadium Pass.
- (b) Boxing—Olympic Auditorium, August 9-13, inclusive. Price, \$12.
- (c) Wrestling—Olympic Auditorium, August 1-7, inclusive. Price \$9.
- (d) Rowing—Finish line, Grand Stand, Long Beach Marine Stadium, August 9-13, inclusive. Price \$14.
- (e) Swimming, Diving, Water Polo, August 6-13, inclusive. Swimming Stadium, Olympic Park. Price \$15.
- (f) Fencing—State Armory, Olympic Park, July 31-August 13, inclusive. Price \$10.

Tickets for single programs vary in price from \$1 to \$3.

## *Program of Events*

SATURDAY, JULY 30—Olympic Stadium; Opening Ceremony, 2:00 P. M. Olympic Auditorium; Weightlifting.

SUNDAY, JULY 31—Olympic Stadium; Athletics: 400m. hurdles—Men, High Jump—Men, Shot Put—Men, 100m.—Men, 800m.—Men, 100m.—Men, 400m., Javelin—Ladies, 10,000m.—Men. Olympic Auditorium; Weightlifting. Armory, Olympic Park; Fencing (Foil Teams).

MONDAY, AUGUST 1—Olympic Stadium; Athletics. Armory, Olympic Park; Fencing (Foil Teams). Olympic Auditorium; Wrestling (Free Style). Rose Bowl; Track Cycling, Field Hockey.

TUESDAY, AUGUST 2—Olympic Stadium; Athletics. Armory, Olympic Park, Fencing. Olympic Auditorium; Wrestling. Rose Bowl; Track Cycling. Field Hockey. Riviera, Pentathlon.

WEDNESDAY, AUGUST 3—Olympic Stadium; Athletics. Armory, Olympic Park; Fencing. Olympic Auditorium, Wrestling. Rose Bowl; Track Cycling. Armory, Olympic Park, Pentathlon. Field Hockey.

THURSDAY, AUGUST 4—Olympic Stadium; Athletics. Armory, Olympic Park; Fencing. Olympic Auditorium; Wrestling. Field Hockey.

FRIDAY, AUGUST 5—Olympic Stadium; Athletics. Armory, Olympic Park; Fencing. Olympic Auditorium; Wrestling. Swimming Stadium; Pentathlon. L. A. Harbor; Yachting. Field Hockey.

SATURDAY, AUGUST 6—Olympic Stadium; Athletics. Armory, Olympic Park; Fencing. Olympic Auditorium; Wrestling. Pentathlon—Cross Country Run. L. A. Harbor; Yachting. Swimming Stadium; Swimming. Field Hockey.

SUNDAY, AUGUST 7—Athletics and Olympic Stadium. LaCrosse. Armory, Olympic Park; Fencing. Olympic Auditorium; Wrestling. L. A. Harbor; Yachting. Swimming Stadium; Swimming.

MONDAY, AUGUST 8—Olympic Stadium; Gymnastics. Olympic Stadium; Field Hockey. Olympic Stadium; American Football. Armory, Olympic Park; Fencing. L. A. Harbor; Yachting. Swimming Stadium; Swimming.

TUESDAY, AUGUST 9—Olympic Stadium; Gymnastics. Olympic Stadium; LaCrosse. Armory, Olympic Park; Fencing. L. A. Harbor; Yachting. Swimming Stadium; Swimming. Long Beach; Rowing. Olympic Auditorium; Boxing.

WEDNESDAY, AUGUST 10—Olympic Stadium; Gymnastics. Armory, Olympic Park; Fencing. L. A. Harbor; Yachting. Swimming Stadium; Swimming. Long Beach; Rowing. Olympic Auditorium; Boxing. Riviera; Equestrian Sports.

THURSDAY, AUGUST 11—Olympic Stadium; Gymnastics. Olympic Stadium; Field Hockey. Armory, Olympic Park; Fencing. L. A. Harbor; Yachting. Swimming Stadium; Swimming. Long Beach; Rowing. Olympic Auditorium; Boxing. Riviera; Equestrian Sports.

FRIDAY, AUGUST 12—Olympic Stadium; Gymnastics. Olympic Stadium; LaCrosse. Armory, Olympic Park; Fencing. L. A. Harbor; Yachting. Swimming Stadium; Swimming. Long Beach; Rowing. Olympic Auditorium; Boxing. Equestrian Sports.

SATURDAY, AUGUST 13—Olympic Auditorium; Equestrian Sports. Armory, Olympic Park; Fencing. Swimming Stadium; Swimming. Olympic Auditorium; Boxing. Long Beach; Rowing. Rifle Range; Shooting. Olympic Stadium; Equestrian Sports. Olympic Stadium; Closing Ceremony.

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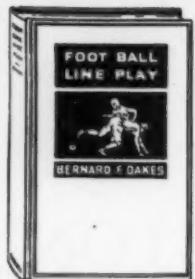
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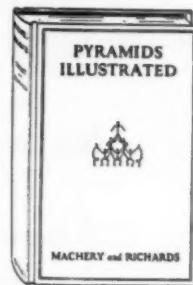
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## Physical Education Meeting

THE Thirty-Seventh Annual Convention of the American Physical Education Association will be held in Philadelphia, April 19, 20, 21, 22 and 23. As much of the program as is of interest to men is published below. Special hotel and railroad rates will be in effect.

TUESDAY, APRIL 19  
*Registration* at Benjamin Franklin Hotel.  
*Dance Drama*, University of Pennsylvania, 8:00 p. m.

WEDNESDAY, APRIL 20  
*Discussions and Demonstrations*  
Swimming Section, 1:00-2:00 p. m.  
Recreation Section, 2:00-4:00 p. m.  
Therapeutic Section, 3:00-5:00 p. m.  
Camping Section, 3:00-5:00 p. m.  
Research Section, 2:00-5:00 p. m.  
Teacher Training Section, 2:00-5:00 p. m.  
*Reception and Dance*, Benjamin Franklin Hotel, 8:00-12:00 p. m.

THURSDAY, APRIL 21  
*General Session*, 9:30-10:45 a. m.  
Presiding: Mabel Lee, President,  
A. P. E. A.  
Addresses:

"National Physical Achievement Standards," Carl Schrader, Director of Health and Physical Education, Massachusetts.

"Standards for Boys and Men," A. Lester Crapser, Director of Health Education, State Teachers College, East Stroudsburg, Pa.

*Section Meetings*  
Public School Section, 11:00 a. m.-12:15 p. m.  
Teacher Training Section, 11:00 a. m.-12:15 p. m.  
Therapeutic Section, 11:00 a. m.-12:15 p. m.  
Men's Athletic Section, 2:15-4:00 p. m.

**FRIDAY, APRIL 22**

*Breakfast Meetings, 7:30-9:15 a. m.  
General Session, 9:30-10:40 a. m.*

*Presiding: Marjorie Bouvé, President, Eastern District Society of A. P. E. A.*

*Section Meetings, 10:50-12:00 a. m. and 2:30-3:15 p. m.*

*Convention Luncheon, 12:15-2:15 p. m.  
General Session, 3:30-5:00 p. m.*

*Presiding: Jesse F. Williams, Vice-President, A. P. E. A.*

*Discussion Groups, 5:00-6:00 p. m.*

*Demonstration, 8:00-10:30 p. m.*

**SATURDAY, APRIL 23**

*Breakfast Meeting, New National Executive Committee, 8:00 a. m.*

*Students' Meeting, 10:00-12:00 a. m.*

*Presiding: James M. Straub, Temple University.*

*Trip to Historic Valley Forge*

## Helps and Hints

(Continued from page 19)

### Game Condition Drills in Basketball

By EDWARD BOHNHOFF

CENTRAL HIGH SCHOOL, GRAND FORKS,  
NORTH DAKOTA

IN our drills for teaching offense and defense we try, so far as possible, to make them adhere to game conditions. A practice athlete and a game athlete often differ a great deal; so we aim to make our players learn the fundamentals under pressure. By that we mean they have to learn to pass when being covered, shoot when covered, dribble when covered and so on.

After a week or so of practice until near the end of the season, the boys are kept under pressure in ball handling much of the time during which they are on the floor. For instance, in shooting drill when a boy shoots and recovers he passes out and then covers the man he passed to. If the boy with the ball then gets in a hole, any one in the best position cuts for the basket. This drill teaches cutting, passing and the necessity of all being alert. Under this method the practice period rarely lasts longer than one hour and a quarter.

The types of drills for offense and defense of course are innumerable, the type probably depending on the style of game used. Most of ours are drawn from game experience and are used along with many stock drills.

### Generalship in Football

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UNIVERSITY CITY HIGH SCHOOL,  
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Although the Medallic Art Company specializes in individually designed medals, it offers for sale a small number of stock medals by outstanding sculptors. The Joy of Effort is one of these. Because of a favorable arrangement with Dr. McKenzie, it is able to offer these 3" medals in bronze at \$5.00 each. This medal, mounted on American walnut with an inscription plate below, at \$15.00, is suggested as one particularly suitable for a high school relay award.

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me as a coach or spectator; the most disgusting part when it is of the "guess as guess can" variety. And I should have caught a bigger share of the "Mexican general" criticism of Coach Bob Zuppke for talking in a huddle, but "Windy" Miller came in for most of it, living up to his name.

In this article, I shall consider offensive generalship only, though defensive strategy has its interesting side. A coach's responsibility is to give his team a well-rounded offensive, based upon a hard running attack. A set of plays that will permit his general to hit any spot of the opponent's line or secondary, via the air, in at least two ways, is essential.

Between the defensive guards there should be quick, powerful smashes plus a delayed or split buck, or a spinner play. Inside and outside of the defensive tackle should be "out and up" plays, or straight mass plays, plus a reverse play using a double or triple pass. For the opponent's end, a complete repertoire should include an "in and out" play, or a wide swing-around, plus a lateral pass play or threat. To keep the defensive backfield from playing your line attack, worry each individual with the possibilities of a long pass straight down, a criss-cross pass behind, a fast shallow pass or a delayed shallow pass. Then you've given your quarterback the working tools of a general.

In punting territory, normally I think it better for a team to use a formation with a punt threat at least on the second and third downs. And conversely, it is best when in the offensive area to employ a short formation, throwing a pass occasionally on the first down to keep the secondary back, taking advantage of the known weak spots of the opponents, watching for players out of position, substitutions, etc. Then in scoring territory, it is well to speed up the attack, using the men and the plays that have been working in this game, and possibly building the strategy up to a so-called touchdown play.

Again, in the danger territory, why let a quarterback call for a double or triple pass play? Some quarterbacks do. Even though you are the underdog, why gamble here with the game still tied, or one touchdown behind, with lateral passes, shallow passes, etc., to make certain your defeat if things go wrong. Why not kick off to your opponents on a muddy, rainy day or a snowy, cold day, even though scored upon, and keep the ball out of your territory? Why not a punting and waiting game under such conditions? It makes it a lot easier to sit on the bench.

## Individual Defense in Basketball

By LEONARD C. MCMAHAN

MANDAN, NORTH DAKOTA, HIGH SCHOOL

THAT a good offense is the best defense is an old maxim in basketball, but it must be taken with a grain of salt; in fact a whole handful. Sportswriters and scribes usually play up the spectacular, in most cases offensive play, missing entirely some fine defensive work.

Every coach has his own ideas, or should have, and my expression here is the theory in which I believe.

### STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

OF THE ATHLETIC JOURNAL, published monthly except July and August at Chicago, Ill., for April 1, 1932.

State of Illinois  
County of Cook

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared John L. Griffith, who, having been duly sworn according to law, deposes and says that he is the editor, owner and publisher of THE ATHLETIC JOURNAL and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

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Managing Editor, JOHN L. GRIFFITH, 6858 Glenwood Ave.

Business Manager, JOHN L. GRIFFITH, 6858 Glenwood Ave.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

JOHN L. GRIFFITH.

Sworn to and subscribed before me this 28th day of March, 1932.

(SEAL)

ROY C. CLARK.

(My commission expires March 31, 1936.)

An offense, no matter how high powered, does not always work. Players are bound to have an off-night, and if one or two players are not going as they should, the whole offense as a unit does not "click." In many cases, disaster is just around the corner, in the form of a demoralized team, if the opponents are hitting at all. Players who are well grounded in defensive play, if they can't score themselves, can at least keep the other team from scoring. If a forward or a guard can keep his opponent from scoring, all he has to do is to score one "bucket" to beat him.

I start my men off in the fall on individual defense; stance, position of hands and movement of feet relative to position on the floor. We practice on picking up a dribbler, guarding shots close in, distances to play from men, adaptation of player regarding men of different speeds, etc. We practice on shifting of men and on guarding against blocks. After a player has mastered the above, I put the entire defense together and work as a unit, watching always the technique of each man. We then work against types of offense we expect to meet.

Do not think that all the time is spent on defense. We of course spend some time on offensive fundamentals, but the greater part of early practice is spent on defense, leaving the perfection of our offense as we progress in our schedule. I find that by using this plan the team reaches the "peak" about tournament time.

Space does not permit a detailed description of the fundamentals used, but I should be glad to answer questions, or exchange ideas, if anyone would care to write to me.

## Behavior of the Discus in Flight

(Continued from page 10)

horizontal distance than if there were no wind. If the wind were strong enough it would blow the discus backward. What then is the happy medium? It is the point where the lift is the greatest as compared with the backward pressure or drag. The tunnel tests show that up to between 7 and 8 miles per hour the elevating effect of a head wind is an increasing help, but that when greater than 7 to 8 miles per hour such help decreases steadily up to 14.5 miles per hour, when the head wind becomes a detriment.

A tail wind shows some rather astonishing results. The casual observer would naturally think that any

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force that pushed an object along would help its speed and increase its distance. This is true, but if the speed is so designed as to bring the object to the ground more quickly, it is not favorable to the discus thrower. What happens is this. We have seen that with a head wind there was a partial vacuum formed in back of the discus, but when the wind is following the course of the discus there is very much less vacuum formed behind the discus and the pressure of the air against the under side of the discus being less even than in still air, there is not only less lift to elevate the discus at any stage of flight, but the wind blowing from behind and striking the discus at an angle may give even a downward pressure. Due primarily to the decrease in this lift, the discus is in the air a shorter time. All the forces and the results of the adverse wind are lessened. There is less lift, less drag, less height and less time of flight. Computations were made up to 14 miles per hour and the result was progressively detrimental to the distance attained. There was no factor apparent to warrant any conclusion but that the stronger the tail wind the less distance would be made by the discus.

What then can we advise a discus thrower to do to gain distance in the presence of a head-on wind? He has a 90° sector in which to elect to direct his throw so that he can elect either direct head-on or quartering. No tests were attempted as to quartering winds, but certainly for the reasons shown above, the advantages would be much less than with a head-on wind or entirely non-existent. The lift depends on a partial vacuum in back. With a full quartering wind there would be undoubtedly less vacuum because the wind blowing in from the side would tend to fill what vacuum was formed by pressure from the side. Certainly it would be deprived of the elevating influence of the blowing wind against the full under surface of the discus because the edge and not the under surface is presented to the wind. The more quartering the wind the less surface of the discus is presented to receive the force of the wind. The wind blowing from the side has a tendency not only to blow the discus in a curve, but to reduce the lift of even still air or what is equivalent to it, i.e., the under surface striking air moving directly across such surface. Probably a quartering wind from any angle is a detriment not only for the above reasons, but because if a partial vacuum is formed on one side it would tend to turn the discus on edge and destroy its sta-

bility in the air. It is in any event difficult to see how such a wind is a material help. Certainly the forces are too intricate for any judge on the field to gauge accurately.

A thrower should then aim to take advantage of a head-on wind provided the same does not exceed 14 miles per hour, by throwing directly into it with an initial angle of 35° inclination of the discus and an initial path of the same degrees.

Where the wind is greater than 7 to 8 miles per hour, and certainly when over 14 miles per hour, the less surface of the discus he presents, the less drag. His reliance must be on speed or momentum. With a strong head wind he would probably do well to elect a quartering wind and a flat angle of inclination of the discus.

The task of a judge is still a difficult one. We have shown that the wind under certain conditions can help a throw to such an extent that it is unfair to allow it as a record. This is true not only as to the record itself, but because he is taking from his predecessor, who presumably threw without such assistance, a record which rightfully belongs to him. Two of the most difficult elements are no longer a trouble to the judge, the speed and direction of the wind, for he has instruments to measure and record these facts. While wind is a variable quantity, it has been found that for the few seconds the discus is in the air, the readings are reliable enough and the discus does not go high enough to enter variable strata.

Assuming the wind to be of the force and direction to be of assistance, there are other things for the judge to decide before he should declare a record invalid. The tables in this study relate to throws under the most advantageous conditions, i.e., a direct head wind, the discus thrown at an angle of 35 degrees to the ground and at a similar path angle. The judge must decide that the conditions of each throw were such that these factors could have helped. For instance, if the angle of inclination were 15 degrees or 50 degrees, there would be no such help as to warrant not giving a record, no matter what wind there was. His task then is to decide if, with a head wind up to 14 miles per hour, the discus was at a 35 degree angle or thereabouts. If not, the record should be allowed. A record should be allowed with any tail wind whatever.

*Editor's Note: This article by Mr. Taylor is the result of a study conducted for the I. C. A. A. A. A. and is published here through courtesy of that organization, in whose bulletin it was first published.*

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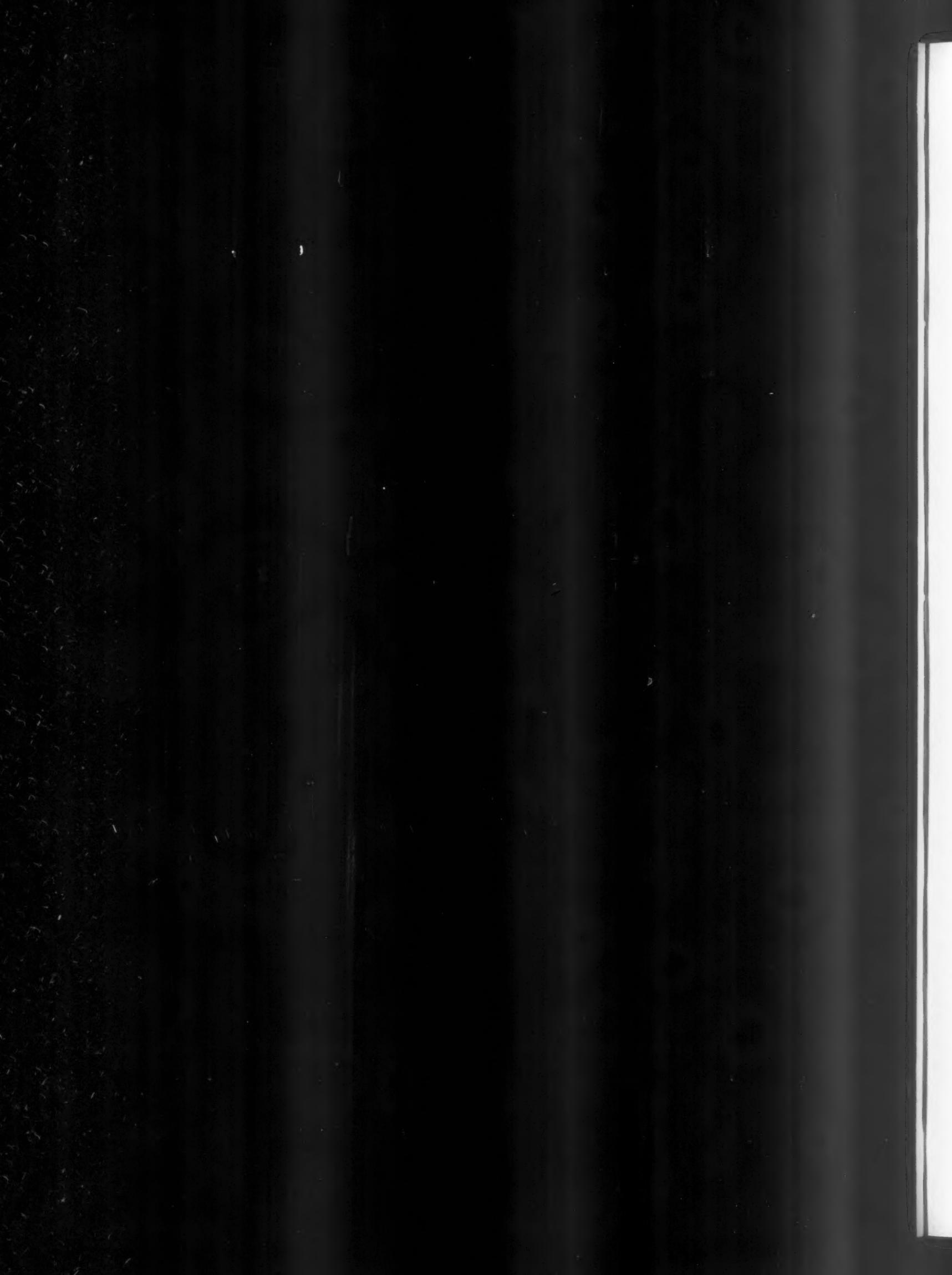
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### Index to Advertisers

Absorbine, Jr.	36
Arcus Ticket Company	38
Athletic Book Company	42
Athletic Journal Posters	Inside Back Cover
Barnes and Co., A. S.	43
Becton, Dickinson and Co.	45
Bike Web Mfg. Co.	Inside Front Cover
Cramer Chemical Co.	42
Denver Chemical Co.	33
Gus. Dorais Coaching School	33
Drake Relays	24-25
Draper-Maynard Co.	3
Franklin and Marshall College	45
Goldsmith Sons Co., P.	29
Gonzaga University Coaching School	46
Hotel Lankershim	41
Huntington Hotel	41
Jones-Spears-Blackwell Coaching School	34
Lloyds, Inc.	46
Maryland Hotel	41
Medallic Art Co.	44
Newcastle Products, Inc.	35
Northwestern University Coaching School	23
Olympic Games Tour	39
O'Shea Knitting Mills	Back Cover
Rawlings Mfg. Co.	1
Reach, Wright and Ditson, A. J.	27
Riddell, Inc., John T.	37
Rocky Mountain Teachers Agency	43
Sand Knitting Mills	46
Southern California Coaching School	32
Spalding and Bros., A. G.	31
Springfield College Coaching School	30
Superior Coaching School	47
Texas Tech Coaching School	43
Utah State College Coaching School	38
Wilson-Western Sporting Goods Co.	4
Witchell-Sheill Co.	47





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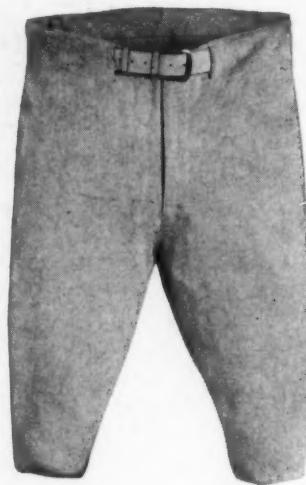
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